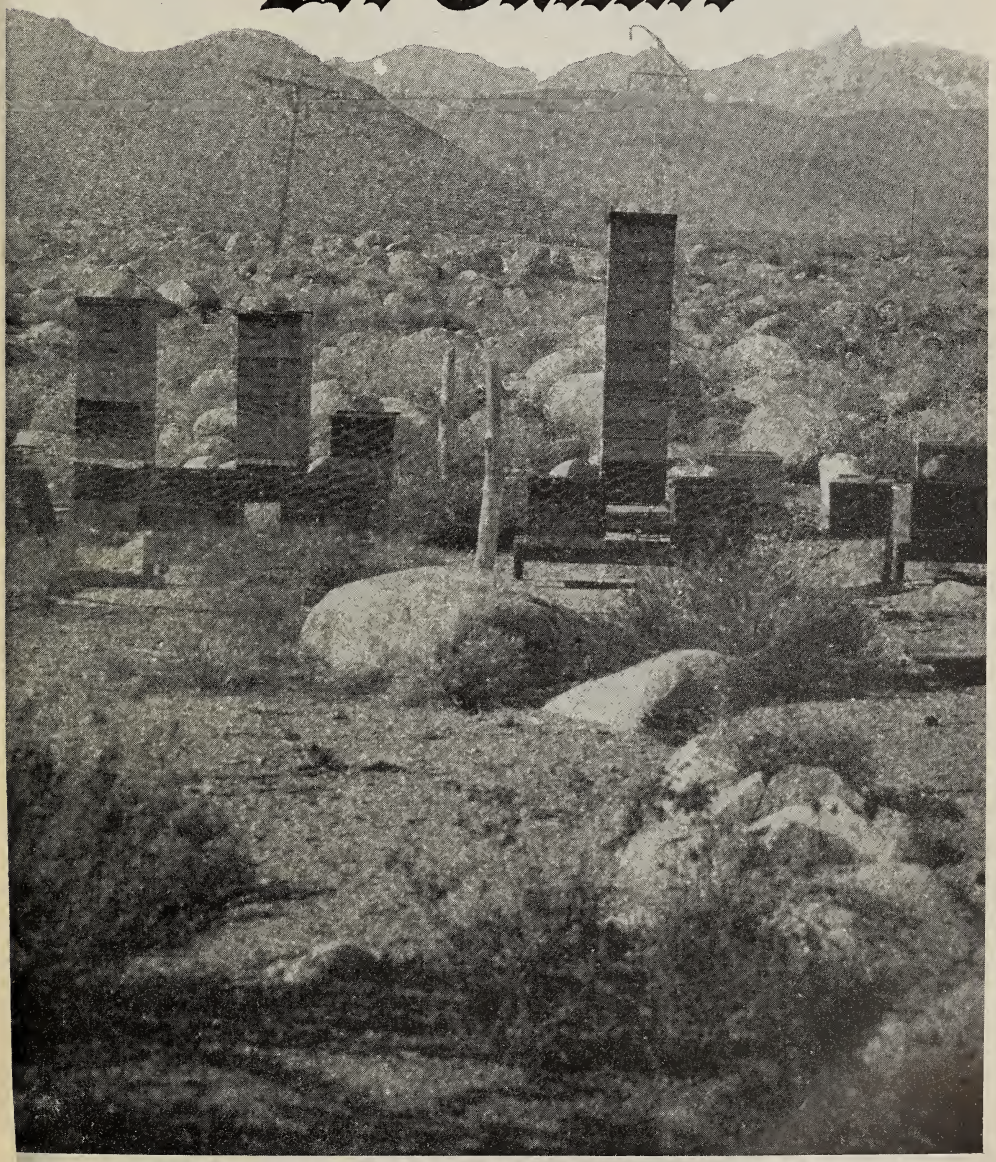
Vol. XLIII JUNE 15, 1915 No. 12



# Gleanings in Bee Culture



Under the Brow of the Sierra Nevadas. See Page 487.

# Gleanings in Bee Culture

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## EDITORIALS

So far as we can learn, all the best grades of comb honey have been sold, and there is a strong demand for the new crop. The market is well supplied with extracted, and producers will do well to run largely to comb honey this season.

We call attention to four notable articles in this issue which we hope every one of our readers, especially those of the specialist class, will read and read carefully. We refer to the articles by J. E. Hand, R. F. Holtermann, E. F. Atwater, and J. A. Green. We may not in all cases agree with them, but we may be able to pick out some ideas that we can incorporate in our own beework.

We understand that the Minnesota Legislature has cut the appropriation for the University of Minnesota by $600,000. All departments of the University will be affected, of course; but the division of bee culture is expected to go on as originally planned, thanks to President Vincent and Dean Woods. This speaks well for the comparatively new branch, and speaks volumes for the good work done under the direction of Prof. Francis Jager.

### Minnesota Beekeepers, Take Notice

The State Inspector of Apiaries of Minnesota, Chas. D. Blaker, of Minneapolis, requests that all beekeepers communicate with him, if they have or suspect they have disease in their apiaries. Mr. Blaker fears that many do not know who the inspector is.

### Honey in the Ice-box

One seldom hears of a dispenser of soft drinks keeping his ice cream where the hot sun can get at it, yet the opposite and equally foolish practice of refrigerating honey seems to be fairly common. An eastern provision dealer of good sense in other lines is reported to be showing his honey in a glass case kept cold by ammonia-pipes.

There is no need to tell beekeepers that honey should be kept in a warm dry place — never in the ice-box. Not only is it an absorber of moisture, but continued cold is likely to granulate both comb and extracted. Where merchants through ignorance are found to be handling their stock in this manner a kindly and explanatory word from beekeepers should open their eyes.

### A Bee's-eye View of Canadian Apiculture

The value of Canada's work for beekeepers is about to be increased by the erection of an apicultural laboratory fitted with every requisite for research. This new building is to be located in connection with the experimental apiary at the Central Experimental Farm, Ottawa, where the problems of beekeeping are being investigated. Notice of the improvement is given in Exhibition Circular No. 18 by F. W. L. Sladen, Dominion Apiarist.

Another feature of the recent bulletin is its almost complete directions for beginning beekeeping, together with a sketch of the craft and its bearing on fruitgrowing, all within the compass of four pages. The matter is handled so concisely and yet so thoroughly that one could begin beekeeping on a small scale with no other information than that in the folder.

### Langstroth on the Hive and Honey-bee in Spanish

Gustavo Gili, Barcelona, Spain, has just published a Spanish translation (La Abeja y la Colmena) of Langstroth's classic, revised by Dadant, in which the translator, M. Pons Fábregues, has carefully followed the English original, with only occasional slight changes and explanations necessary

for the better understanding of the Spanish beekeepers. M. Pons Fábregues is a well-known beekeeper of Spain, an indefatigable advocate of the modern system of beekeeping, and formerly editor of the Spanish bee-journal *El Apicultor*. He has published a number of other works on beekeeping, among them a book on the honey-bearing plants of Spain (Flora Apícola de España), probably the first of its kind ever published in the Spanish language.

"La Abeja y la Colmena" is attractively bound in cloth, and sells for 10 pesetas (about $2.00), and will, no doubt, prove of great interest to Spanish and Latin American beekeepers.

## A Correction

George W. York, in acknowledging his thanks for our editorial writeup of his political career in Gleanings for May 15, page 391, makes a couple of corrections which we deem only fair to place before our readers.

For example, we made the statement that when he became a member of the city council at Sand Point, Ida., he "initiated a movement to clean out the undesirable element of the town." He protests that he did not "initiate a movement," but he did back up the mayor.

We made the further statement that, while he "bore the Republican label, he was still a Prohibitionist at heart." This might be construed to mean that, while a third-party Prohibitionist, he sailed under Republican colors, and, therefore, was not sincere. In regard to this he says he went in with the Republicans in good faith—worked as a Republican, because that party had put prohibition in its platform. As some wet Republican newspapers might try to make capital out of this, we gladly make this correction.

## Direct Advertising for the Honey-producer

Advertising, like the discourse we studied in Cæsar, can be divided into two classes—direct and indirect. The latter casts bread upon the water in the hope that in due time it will turn up. Judicially inserted, carefully written advertisements in daily and weekly newspapers on streetcars and on billboards undoubtedly have a heavy pulling power, which could well be studied and utilized by the honey-producer.

The direct form of advertising sharpshooting aims to capture the attention of the individual prospect by any one of the thousands of different means. The well-known envelope sticker "Eat Honey" is too familiar to need description. In this case the mere suggestion calls to the mind of the recipient the thought of honey, and its own instinctive reaction is relied upon to do the rest.

The envelop enclosure is another form not too expensive, which apparently has been employed by none but the most extensive honey-distributers. A small leaf, folder, or booklet, just large enough to fill the envelope, is inserted along with the letter, and goes within the one ounce carried by Uncle Sam for two cents. If the matter is interestingly worded and attractively printed it is bound to catch the attention of the one to whom the letter is addressed.

A small blotter is something of use in every home. A neat calendar finds its place on every wall. These, if they convey the information that So-and-so has his honey on sale in every grocery store, will keep pounding it into the brain of every prospect every day he sees it. It is refreshing to receive frequent little advertisements of this nature full of good will and business-like optimism. It shows that the honey-producers are alive to the opportunities in this kind of advertising.

## Co-operation in Massachusetts

Massachusetts apicultural work is all centered in one office, several phases widely different in scope coming together at one point, even though supported by many different appropriations, according to Dr. Burton N. Gates, writing in a recent number of the *Journal of Economic Entomology*.

First in the centralized organization of beekeeping as a whole are the courses of the Massachusetts Agricultural College in entomology and beekeeping. A practical museum and a beekeeping library are maintained in connection, as well as the laboratory, an apiary of fifty colonies. The work of the Entomological Experiment Station and of the extension service goes on side by side with that of the school.

The features of the college interlock with those of the inspection service as well—by no means a small part of the state work for beekeepers. A slightly different inspection policy obtains in Massachusetts. The inspectors start with well-known centers of infection and canvass every apiary, slowly widening out in circles until the limit is found. This plan seems to get results, for the beekeepers are becoming more satisfied and prosperous, and, according to the inspectors' report for 1914, many parts of the

state are approaching a disease-free condition. Dr. Gates is now looking forward to the time when the state will be relatively rid of infection altogether.

That the activities of the states for the benefit of beekeepers are tending in every case toward a centralization similar to the policy of Massachusetts is the belief of GLEANINGS. Only by concentrating efforts in this manner can each department realize the full benefit of co-operation with every other department and the complete efficiency we all look forward to in beekeeping be attained.

## Death of Prominent People in the Bee-supply Line

SINCE our last issue, three people prominently connected with the bee-supply business have died. The first was Mrs. H. G. Acklin, in charge of the A. I. Root branch at San Francisco. The next was Mr. O. E. Mayfield, of the Toepperwein & Mayfield Co., San Antonio, Texas; and the last, Mr. W. T. Falconer, of the W. T. Falconer Mfg. Co., Falconer, N. Y. It is not often that three people so prominently connected with the business have passed away in so short a period.

Referring to the San Francisco office, a competent person is in charge there, and the business will continue as heretofore. The Toepperwein & Mayfield Co., when Mr. Mayfield became indisposed on account of overwork, installed a manager, and the office has been in good hands for some time back. Its policies will be continued as heretofore. The W. T. Falconer Co. is a strong organization; and even though it has lost its founder, after whom it was named, it goes without saying that there will be no change in its policies.

We will try to have a more elaborate sketch of the persons named in our next or subsequent issues. It only remains for us to say that our sympathies go out to all the friends and relatives of the parties named.

## Aster Stores not necessarily bad for Wintering

WHILE this subject is, perhaps, a little out of date, yet because the discussion of it is so fresh in our minds it may be proper to call attention to some new developments just now brought to the surface which may be forgotten or overlooked.

There has been a general consensus of opinion to the effect that aster stores, while not necessarily bad, are undesirable for winter, to say the least. There has been considerable conflict in the testimony. A careful analysis of the reports goes to show that when bees winter poorly on the aster there is usually something else mixed with it. That "something else" may be goldenrod or swamp-milkweed, or both. The combination is evidently bad. Unfortunately one or two of our yards had aster, swamp-milkweed, and goldenrod all together. One beekeeper reported that a combination of goldenrod and aster was very bad. This last year he had the combination and lost heavily. In some previous years he had only aster, and his bees wintered nicely. At one of our yards we had considerable milkweed with the aster, and the bees showed signs of dysentery as early as February.

Mr. A. C. Ames, of Peninsula, Ohio, one of our state foul-brood inspectors, was located near the aster swamp. He had neither goldenrod nor swamp-milkweed, and yet his bees wintered well.

We shall be glad to hear from any of our readers on this proposition. We will hold the reports when they come in for fall discussion. If it is shown that a combination of aster and goldenrod is bad, then the remedy is to extract before the bees go into winter quarters, and feed sugar syrup or some honey of good quality, and then use this combination of aster and goldenrod or swamp-milkweed, or both, for spring or summer feeding.

## Freaks of the Weather

SOME two or three weeks ago it was getting to be very dry in and about Medina. Some days it would cloud up, and we could hear rumblings of distant thunder, but nary a drop of rain at Medina. Sometimes the dark clouds would be north of us, and at other times south; but every time we seemed to be missed. The tables are now turned. Every time there is rain anywhere along the central and eastern states, Medina gets a dose. The United States Weather Bureau maps to which we referred on p. 349 of our May 1st issue that are coming in to us every day, show some peculiar freaks of the storm-bound area. They are now showing that Medina for the last few days has been on the edge of the areas of precipitation. Sometimes we are in the center of it; but we always get it if any place does.

The weather maps show that Dame Nature has a way of equalizing. If any particular spot has been "neglected" or skipped, there come times a little later when that neglected spot will get rains if any place within 200 or 300 miles gets it at all.

We only wish we could take our subscribers and have them look over our shoulder at the U. S. weather maps, and see how the rains spread over certain areas of the United States. Apparently the rains fall in a sort of haphazard way; but a little study shows that the deficiency at one time is fully made up at another. If there is a long drouth in early spring it will be followed by a heavy precipitation in late summer or early fall. In the same way, a very cold winter is apt to be followed by a hot summer. Of course, there are exceptions to these general rules; but it is wonderful how Nature sooner or later equalizes her "showers of blessings."

In like manner an abnormal hot spell in early spring will be followed by cold and frosts. In April of this year we had two weeks of "awful hot weather." A few days after, we had cold and frosts.

## Danger in Sending Old Comb by Parcel Post

We have repeatedly advised our readers that we cannot accept shipments of old combs to be rendered into wax. We should be glad to do this were it not for the fact that our home apiary is located within a stone's throw of the railroad station, and sooner or later a box would come in bad condition—honey leaking out on the platform. If those combs came from hives containing foul brood, such leakage would be a source of very great danger to our bees.

The carelessness that some beekeepers show in sending old comb by parcel post is beyond our comprehension. Pieces of comb containing honey (and thin honey at that), and dead bees, are sometimes wrapped with a *single thickness* of paper and sent to us by parcel post for examination to see whether the comb contains foul brood. We have mentioned this matter in these columns repeatedly, but we presume these instances of what might almost be called criminal carelessness are caused by ignorance on the part of beekeepers who do not read GLEANINGS nor any other bee-journal. Nevertheless, we wish to repeat again that *we do not make examinations of suspected samples of brood.* All such should be securely packed in a wooden or tin box and sent to Dr. E. F. Phillips, in Charge of Bee Culture Investigations, Department of Agricuulture, Washington, D. C. Dr. Phillips will even send government franks on request, which will save the cost of the postage.

It is because of this same danger that we cannot accept parcel-post, express, nor freight shipments of old combs to be rendered into wax. As mentioned above, if our home apiary were not located so close it would be a different matter; but under existing circumstances the whole proposition is a dangerous one.

About a month ago we received a package of old combs by parcel post from a point so far distant that the postage on the package amounted to more than the wax was worth.

## Honey-crop Conditions and Prices—Clover Prospects Good

Up to this writing, June 10, it has been rather cool in the clover districts; but there never was a time when clover looked better in most of the clover regions in the northern and central states, as there have been nice rains in most of the territory.

Clover is promising in Iowa, Minnesota, Wisconsin, Ohio, Michigan, and parts of Illinois and Indiana. Winter losses and a lack of rain, frosts and freezing, will cause a light crop in New York and Pennsylvania. From New England, reports are somewhat scarce; but from what we have received no large yield is promised. There are almost no reports from the eastern sections of the country. This would rather indicate that the beekeepers are in a state of don't know, and, therefore, are saying nothing.

Mr. J. J. Wilder, of Georgia, who is largely engaged in the business, says the reports from the South are somewhat discouraging. In the northern Blue Ridge region he says the situation is better; but further down in the Red Hills an average crop has been secured.

In northern Florida tupelo is a failure, and the yield from palmetto and other sources in the state was not large.

In Texas the prospects were good earlier in the season; but continued unfavorable weather and a severe drouth have cut down the yield, in *southern* Texas at least. A letter just received as we go to press says the crop will be thirty days late. This is generally true of the North and East also. In the famous Uvalde region there will be an almost entire failure.

In Colorado there will probably be a fair crop of honey. The shortage of snow in the mountains was made up later by falls of snow and later by rains. Prospects are also good in other alfalfa and sweet-clover producing states.

In California the situation is somewhat uncertain, and the yield from mountain sage, orange, and alfalfa is reported light, although there will probably be some fa-

vored sections. In Oregon there has been too much rain.

In Canada there were considerable winter losses, and the prospects earlier in the season were not at all flattering. It is our opinion, however, that there should be at least a light crop of clover in southern Ontario. We base this prediction on the weather maps.

If the weather warms up in the clover districts, there will be a big yield of white-clover honey in many places. It would seem that this cool weather cannot continue indefinitely. In our section of the country we never saw more white clover in *spots* than we have seen this year. The basswoods are all looking well, with plenty of buds. Indeed, we never saw our basswood grove have more buds in June than now. A well-known Michigan correspondent says there is a large basswood crop in prospect there, with clover also promising well.

Taking everything into consideration it would seem that the north-central parts of the United States, including the alfalfa districts, will yield the larger part of the honey this year. At this writing (the 12th) it looks as if there would be a good crop of honey, both comb and extracted, from white clover, alsike, and a normal yield from alfalfa in the West.

Last year there was a large crop of southern honey, and almost no market for it on account of the war. The shortness of the southern crop this year should improve the market; and as there is always a good demand for the best table honey from clover and alfalfa, prices ought to be firm, even if the yield should be large.

## J. E. Hand on the Long Idea Hive and the Swarming Problem. Exploiting New Hives before they have been thoroughly Tested

In this issue Mr. Hand replies to our article on page 143 of the current volume on the subject of the Long Idea hive as used by O. O. Poppleton, of Florida. Our correspondent denies that he is a user or a supporter of the Long Idea principle as used by the Florida man. In this we stand corrected. While he does not deny that the convertible principle that he recommended on page 906 of last year is old, he goes on to show that it is good nevertheless, which fact we are quite ready to concede.

Mr. Hand is one of the oldest beekeepers in the country. He has studied this and other problems connected with the industry very carefully, especially the one of swarming and of wintering. There are many things in his article that are true, and perhaps several others on which the veterans will take issue.

Mr. Hand's argument would be stronger if he had not made some radical changes in h ves during the last six or eight years. He first cut loose from the regular standard Langstroth hive and adopted the shallow divisible-brood-chamber principle similar to that advocated by Mr. James Heddon in 1885. This he continued to use with slight modification until five or six years ago. Then he went back to the regular Langstroth hive and frame, using the same, or, rather, a pair of them, on a double bottom-board with a mechanism to force the bees from one hive to the other to control swarming. After using the Langstroth ten-frame hive for two or three years he abandoned it for the 16-frame hive; and now he has abandoned the 16-frame hive and uses only the 14-frame hive. One who has followed all these changes will wonder if he will not yet come down to the 12-frame hive, and finally back to the 10-frame Langstroth.

Mr. Hand's argument would be stronger if he had used his big hive for more than one or two years. If one year's use of the 16-frame has convinced him that it is too large it is not impossible that next year he will decide that the 14-frame is too big. While these changes would seem to weaken his argument, we must confess that there is a thread of consistency throughout all of these various changes. First, last, and all the time he has been trying to control swarming, and has succeeded to a greater or less extent. As we understand it, he is still an advocate of his switch lever bottom, which he will use in connection with his 14-frame hive. We hope, therefore, the reader will go over his argument very carefully, because Mr. Hand shows that he understands the swarming problem; and however we may or may not like his present departure in hive construction, we must not forget that he is still clinging to much the same principles in swarm control that he has been working on for years.

In regard to the wintering problem, Mr. Hand says that winter packing is practically worthless seven months in the year, and worse than useless at other times, because the sun cannot penetrate the double packed walls. On this proposition we can not quite agree. In our queen-rearing operations we can get earlier and more continuous breeding all through the summer in double-walled packed hives than in single-walled. Often there are times when we

have cool nights and chilly days right in the midst of summer; and in our cell-building operations, at least, we find it better to use the double-walled hive throughout the year. This is not a theory with us, but a demonstrated fact. Even in a comb-honey super we find that bees will do better comb-building in a protected super, taking our weather conditions as we find them, than when there is only a single thickness of wood between the bees and the weather.

## Resistant Strains of Italians, and How they Make for the Reduction of European Foul Brood; Some Difficult Points Cleared up

THE Provincial Apiarist, Mr. Morley Pettitt, Guelph, Ontario, Canada, in charge of the Apicultural School and experimental work at that point, has sent out a bulletin detailing "some results of co-operative experiments on races of bees to determine their power to resist European foul brood." It seems that he sent queens from some of the best breeders of resistant strains of Italians to beekeepers throughout Ontario. He instructed each recipient "to introduce the queen to a good average colony that is affected with European foul brood. Sometimes there are colonies that seem to be immune to European foul brood for a while. Do not use these for experiment. If you have treated your bees by the shaking method, introduce the queen to a good colony that was diseased before treating."

The replies after the lapse of a year or two are exceedingly interesting and valuable. Naturally enough in one respect at least they show just what we should expect to find—that a vigorous leather-colored strain of Italians are much more resistant to the disease than the common black bees —better than Carniolans, and in most cases better than the extra yellow bees bred for color, although there is one exception where the goldens seem to be more resistant than the darker strains.

The replies in some instances are not clear on one point; and that is, whether merely introducing a queen without shaking or dequeening accomplishes a cure or not. But it would appear in most cases that the colonies were either shaken or dequeened prior to the introduction to the resistant strain of Italians. In a few cases it was very clearly shown that where blacks or hybrids continued to be used, that European foul brood came back after shaking, and continued to do so, and that the introduction of Italian blood after the last shaking finally affected a permanent cure.

It is shown also that all Italians are not proof against the disease; that a strain that is resistant in one apiary where European foul brood holds sway is not necessarily resistant in another. But this is explained by the fact that European foul brood, after it has been in an apiary or a colony for a few years loses its virulence. At the end of that time it yields more readily to treatment. It follows, then, that if an apiary has recently contracted European foul brood it will give its owner more trouble in the handling of the disease, and that when it does break out in a yard for the first time the owner should rely on all known means to hold it in check. First of all, it is of prime importance to introduce a strong vigorous strain of Italians—preferably those of the leather-colored type. The inspectors of New York have for years made this emphatic, and they ought to know. Dequeening for a certain number of days prior to the introduction of a vigorous strain may be sufficient; but it may be advisable to shake as well as requeen; and it may be necessary to shake again until the disease begins to lose some of its virulence.

Mr. Pettit is to be commended for his enterprise in starting an inquiry that involves so large a territory, and for bringing together a mass of testimony that is so convincing on a problem on which there has been such a difference of opinion. If it is a fact that European foul brood, after four or five years, loses its virulence (and that fact seems to be now pretty well established), then it explains *why* a mild treatment in one case effects a cure while in another it seems to be entirely ineffective, and *why* there has been such a conflict in testimony. Every beekeeper, whether he has European foul brood or not, would do well to secure a copy of the above-mentioned bulletin. We presume that all Americans, at least, will have to pay, say, ten cents. Certainly every beekeeper in Canada should get a copy at once; for even if he has no European foul brood it will save him hundreds of dollars against the time when it may come among his bees. In the mean time, as a preventive means, if he has not already done so, he should get rid of his blacks and hybrids at once, and introduce in their stead a vigorous strain of Italians. European foul brood, unlike the American type, is disposed to break out again after treatment. Prevention is better than cure. While good Italian blood will not keep it out necessarily, it will help, and, what is of considerable importance, make the problem of cure much more simple if it does break out.

Dr. C. C. Miller

# STRAY STRAWS

Marengo, Ill.

May 24 was wet, and bees were thick on the grass in the asparagus bed—no bees on grass elsewhere. A barrel of salt had been spread on the bed. Strong proof that bees do like salt.

G. M. Doolittle's discussion of winter confinement, p. 441, says nothing about difference between cellar and outdoors. With best conditions in cellar I should expect bees to stand a good bit longer confinement than outdoors.

Wesley Foster says, p. 436, that opening a hive seems to aggravate drifting. Exactly. So when we set a hive on its stand we not only do not open it, but we close its big entrance down to a square inch or less. During the years since we began that we have never had a drift.

Speaking of making a swarm stay in a hive, p. 464, it is said, "With frames and starters of foundation they will not come out . . . and they will not come out if there is a big noise about." I wonder, now, whether either of those things have the least effect in holding a swarm.

Speaking of our "national crime-breeding partnership," A. I. Root says, p. 468, "We men who cast our votes are to blame —every one of us." Speak for yourself, Bro. Root. I plead not guilty. If all "we men" had voted with me in the last 40 years there wouldn't be a saloon in the land.

First bloom on white and also alsike clover found May 27. But day after day it's cold and wet, seldom above 50, and bees stay close in their hives. But clover is plentiful, and if it will only honey there may be a good crop. [White clover began to come out in this locality during the last days of May; and to-day, June 4, the bees are just beginning to work on it. While clover does not seem to be abundant, yet what there is of it seems to be yielding a little earlier than usual.—Ed.]

T. J. Quail, p. 453, thinks I must be mistaken about bumblebees working on alfalfa. Possibly; but they looked the same as when working on red clover. I know it's the rule that alfalfa doesn't honey east of the Mississippi; but at other times I've seen enough honeybees on it to warrant the belief they were getting something. Moreover, there have been (I think in Gleanings) reports of bees working profitably, I think, on alfalfa in New York and Wisconsin. [As a rule alfalfa does not yield nectar in the East; but we have had reports of its yielding in New York and Wisconsin as you say. Mr. S. D. House explains it by saying that alfalfa has to be in a locality for a considerable length of time before it yields honey.—Ed.]

E. G. Carr, p. 466, I should say that a colony with European foul brood to be "strong" enough for treatment should have bees covering five or six frames of brood, and there should be a large proportion of young bees. Your question's a fair one. Here's another just as fair. Just how many bees do we mean in general when we speak of a strong colony? I don't know; but I'll start the ball by saying not less than 50,000. [We estimate from 4500 to 5200 bees to the pound. Let us call it 5000 for the sake of an even figure, for it will be about 5000 when the bees are not filled with honey. Then 50,000 bees will mean 10 lbs. One of the biggest swarms we ever hived contained 9 lbs. of bees when placed on the scales. Your 50,000 mark, then, is not far from right, as a few bees would be left at home. For the production of extracted honey we are not sure but we should like to have the colony even stronger than that. Something however, would depend on the size and shape of the hive. An ordinary comb-honey colony probably would not have much over 35,000 bees. A ten-frame brood-nest could contain about 4 lbs. of bees. The supers might contain 3 lbs. more, or in all 35,000 bees on the basis of 5000 to the pound.—Ed.]

W. S. M'Nair, I'm a good bit in sympathy with you about the classes of queens, p. 414. It's a perplexing question, and perhaps we ought to have a commission sit upon it. Take "select untested." If that means anything it means that he who buys simply "untested" gets something inferior. As you say, you can't tell a queen by her looks, unless there be something wrong about her, in which case all the selecting that should be done should be to select out the bad and smash their heads, and that before they're mated. Then as to testing, we're learning to put less reliance on color. Isn't the real test the performance of a queen rather than her color? And you can't know the performance of a queen till she has lived through a full season. But perhaps I'd better leave the rest for the commission to settle. [One who buys "untested queens"

*Continued on page 483.*

J. E. Crane

# SIFTINGS

Middlebury, Vt.

We find our weak colonies wintered better in cellar than out of doors.

* * *

Bees appear to have wintered fairly well in western Vermont; clover the same.

* * *

Our bees have shown the greatest loss in wintering where they gathered the least during August, with one exception, and that was where a large number were molested by thieves.

* * *

Adam Leister's prophecies, page 326 and 327, are certainly very comforting, and we hope they will be fully realized. Last year it was very wet through April, with drouth later. Clover is very abundant hereabouts.

* * *

I quite agree with J. L. Byer as to the value of those ten-pound pail feeders, page 194. I have used them for years, and know of nothing cheaper or better. If they were made of better tin they would last longer, however.

* * *

We have found steam from a kettle for use with a steam uncapping-knife most excellent for softening and toughening the corners of one-piece sections when putting them together. They go together very much better than when water is used.

* * *

Louis H. Scholl tells us, page 222, March 15, how to keep down the swarming fever, and then as a clincher says, "After all, the secret is to begin to prevent swarming before the desire to swarm has ever awakened in the colonies. Remember that." Good advice, surely.

* * *

I can well believe what John W. Love tells us on page 324, April 15, about the yield of honey from banana blossoms. I have taken several drops from a single flower. I should think it would be a bee paradise in Central America, where so many are grown.

* * *

We have found that an excellent way to strengthen very weak colonies is to shake a lot of young bees from a strong colony, selecting a comb where they are hatching fast. Any old bees on the comb will return to the hive from which they were taken, while the baby bees will remain to cheer and strengthen the weak colony.

One of our yards of 98 colonies where they get enough honey during August to keep up brood-rearing and supply them for winter, wintered without the loss of a single colony, proving what has seemed for a long time true, that our success in wintering depends a good deal on the previous season!

* * *

The Quinby number for April 1 seemed to me a great success. I feel as though I had never fully appreciated this great man. In reading of Quinby and Langstroth the thought comes home to me anew with renewed force, how few are those who do the hard thinking for the world! It is much easier to do what some one tells us than to think for ourselves.

* * *

We fed last fall some 15,000 lbs. of sugar syrup without the addition of a drop of anything to prevent granulation. It was made two parts sugar to one of water by weight. A good deal was fed after Oct. 15, and much of it to weak colonies. I presume 4000 lbs. or more remained in the combs unsealed; yet I find very little granulated this spring—less by far than when wintered on their own stores.

* * *

I am glad to learn from GLEANINGS for March 15 that the A. I. Root Co. is going to use Mr. Poppleton's old yard at Pompano for rearing bees and queens. I see no reason why bees should not breed there freely the year round. I spent nearly a month in the yard in March and early April, and had swarms almost every day. Pollen was very abundant, and the bees bred rapidly, although little honey was coming in at that season.

* * *

Mr. T. Rayment on page 151, Feb. 15, tells us of his feeding experiments. I notice that those colonies fed on candy of sugar and honey required but little more than half as much as hives fed on honey alone, while those fed on sugar and egg ate less than half as much and had more brood. One lot he fed on pure sugar wintered well, but required a little more than when fed on pure sugar candy with honey mixed with it. Some years ago I had some colonies short of stores the latter part of winter or early spring, and bought a quantity of domino sugar and laid it on the frames and found the bees ate it without difficulty. The fact that Mr. Rayment's bees consumed the least food, and did the best when it contained

some egg with it, would go to show that some nitrogenous food is desirable in their winter food. We are looking for more light.

* * *

It seemed good to me to see Mr. O. O. Poppleton in GLEANINGS for Feb. 15, as I was with him for some time three years ago. What is said in praise of his hive is not overdrawn. I had the care of his yard at Pompano for some time, and I believe that, if I were going into keeping bees in the South, and extracting honey, I should adopt that style of hive in preference to any other. One of the beauties of the hive is that one can always get at the brood-nest without lifting off a heavy super right in the honey harvest.

* * *

It may be well for us who are engaged in the production of human food to remember that we are doing a strictly partnership business. We may plow, sow, and reap; we may care for our flocks and herds, our birds or bees, and we do well, for if we did not we should all starve. We should just as surely starve if our Partner did not do his part by giving the rain and warm sunshine, the fertility of the soil, and, above all, endow the plants and animals, the birds and bees, with that mysterious something we call life. It is just grand to feel that we have such a Partner to work with us, and make our efforts a success.

* * *

Mr. Henry Stewart's idea of "pumping" up potash from the subsoil by use of sweet clover is a good one, page 319, April 15. I have become very much interested in this plant, and firmly believe it is to play a very important part in the beekeeping industry of this country. Some thirty acres will be sown in this vicinity this season—not much of it, I fear, within range of my bees, however; but I am pleased to see farmers waking up to appreciate its value. I believe it has qualities that will commend it more and more to practical farmers. The valley of Lake Champlain, lying to the east of the Adirondack Mountains, is very much subject to drouth, and the strong long roots of sweet clover will help to produce good crops of forage when other shallow-rooted crops would prove a failure.

* * *

There has been a good deal of discussion during the last year or two as to the best winter nest for bees. This is well enough; but I have been more interested in the best spring nest for bees, especially the weaker colonies. It doesn't matter so much about strong colonies, as they can get along without much difficulty; but the weaker ones—can we help them improve their nests? I notice the bees themselves hold different views on the subject. Some will start in one corner of the hive, another at one side, while another will begin in the middle of the brood-chamber, while still others will start their brood, little patches of it, at one end of the chamber in several combs. Now, how can we help them to push their brood forward most rapidly—by changing their nest? or are they the best judges of conditions or the best prophets of future results?

* * *

On page 199, March 1, Mr. E. S. Miles tells us that after keeping bees for some years he stumbled on to the greatest fact in beekeeping. He says, "This great fact is, the variation in bees. * * It took several years to convince myself that my imagination was not playing me a trick." Do we beekeepers make enough of this great fact? It is this fact that has made the keeping of fowls so profitable; that has enabled the American Merino sheep to produce nearly or quite three times the weight of wool its ancestors did seventy-five years ago; the Morgan horse to trot a mile in two minutes (or is it two minutes and half a second)? It is this fact that makes the sugar beet so profitable at the present time, and potatoes yield such superior crops of tubers; our fruit and seed catalogs so fascinating, and one colony of bees do so much better than others with the same care.

I was talking with a man a few days ago who has a cow that gave him some six hundred pounds of butter fat in one year. Now, the most interesting and important thing is that these variations are transmissible from one generation to another, and we can, if we will, greatly improve our bees and increase the pleasure and profit of keeping them.

## Stray Straws

*Continued from page 481.*

is supposed to get a standard quality. In like manner he who buys "select untested" secures something a little above the standard so far as appearance is concerned. No one can absolutely determine in advance by her looks what a young laying queen will do. But appearance gives an indication. A full-bodied queen—that is, one well developed in size—will probably do better work in egg-laying than one whose abdomen is a little smaller. But this is not necessarily true, for there are exceptions.—ED.]

# BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

"A young queen is half the battle, both in fighting disease and in securing surplus," says P. C. Chadwick, p. 96. Is this not only true in a sense? I have seen many young queens that were not as good as older ones. Perhaps it would be better to say "young *good* queens," and better hit the mark. Nothing goes further toward good results in beekeeping than good queens.

* * *

Many times have I called attention to the mistake of extracting too close after the honey harvest, and leaving the bees short of stores during the winter months and the breeding season in the following spring. It is too risky, and many beekeepers have lost bees as a consequence. It is a too common practice that should be abandoned. The few dollars' worth of honey that may be "robbed" then would be worth more to the bees and their owner in larger returns later.

* * *

The divisible-brood-chamber hive has proven most excellent in swarm control this spring, just at a time when it seemed that every colony would cast not only one but more swarms. In the apiaries we were enabled to manipulate properly by interchanging the halves of the brood-chambers at the right time. We "knocked swarming in the head" in fine shape. Due to the preceding heavy rains, floods, and bad roads, we were not able to visit all the apiaries; and the result was that we had swarming galore at those not manipulated at the proper time. Breaking up the brood-cluster and relieving the congested condition is the secret of swarm prevention. But this must be done before the bees actually have the swarming fever already on.

* * *

The question has been asked me as to what to do with a colony that already has the swarming fever developed to such an extent, and queen-cells already built, that the mere manipulation of the hives and interchanging of combs and breaking up the brood-nest will not abate swarming. Colonies in such an advanced condition very often swarm in spite of the fact that their brood-nest and the entire hive has been torn up by manipulations seeking to alleviate the swarming fever. The best procedure, therefore, is to help them along in the matter by shaking them into a new hive on the old stand after the old hive has been moved to one side. Only enough bees are carried with the old stock to a new location in the apiary as are necessary to care properly for the brood. Care is taken to set one comb, with one or two fine queen-cells and adhering bees, into the hive to be moved away, without shaking at all, so as not to injure the inmates in the cells. Better still, give a laying queen to the old colony and thus prevent delay in the progress of the colony.

* * *

In answer to another question by one of our readers, I wish to say that one can double the number of his colonies and have two strong ones in place of one in those localities where the honey-dew comes later in the season. Very often the early mesquite and horsemint flows fail to come in our section. If we have done our duty we have had our colonies built up to good strong ones that would have been ready for any early flow. It is often impossible to tell whether mesquite will or will not yield, so it is well to make the preparations just the same. In the event the early flows fail to come, our attention may be immediately turned toward making a good amount of increase without interference with the later flows. Increase properly made at this time will result in the new colonies being as strong as the old ones. Often the new colonies, owing to the fact that these are headed by prolific young queens, outstrip the others in surplus production. We have frequently doubled the number of colonies in some of our apiaries, and harvested twice the amount of surplus over yards that were in practically the same kind of location where we made no increase.

* * *

It may be well here to give my method of procedure in making increase in the spring when we have early honey-flows. The reader will bear in mind that we leave a super of shallow extracting-combs, more or less filled with honey, on the hives in the fall for winter stores and additional breeding room in the spring. Shortly before the early honey-flows come we slip on our comb-honey supers with full sheets of thin-super foundation, after raising the extracting-super up. This method is an excellent one to get bees started in the comb-honey supers rapidly.

More or less brood is contained in the extracting-supers at this time; and after the bees are well going on the foundation they can be removed, with the bees in them, to

*Continued on page 485.*

# BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

If I were taking students to train in bee culture I would first have them read Langstroth's original work. It is a splendid foundation for the thoughts of a beginner.

* * *

Dr. Miller, in commenting on my remarks regarding chilled bees, makes a good suggestion. But the fact that we lose many bees that are not frozen but chilled and lost in the field remains unexplained.

* * *

The picture of granulated aster honey in the comb, page 329, April 1, bears very much resemblance to the product from bluecurl in California. This honey often granulates solid, even where sealed.

* * *

Louis H. Scholl recommends small stones to indicate the condition of colonies. I have used this method for years as a kind of from-day-to-day record, but am now keeping a book record for permanent information.

* * *

At this writing, May 30, the weather has reached a normal point, with the button sage nearly out of bloom in this locality, the white variety just coming in, and wild alfalfa at its best. We are getting a slow flow, the amount of which will remain uncertain for the time being.

* * *

Prospects are for a short crop in the orange and sage belts. When the button sage has its off years it matters not whether it rains by the foot or the inch. It will have its rest any way. That much has been plainly proven this season. From now on it will remain a fixed fact to me.

* * *

With an empty super, a bee-escape board, and a large wire-escape cone fit to the board instead of the little Porter bee-escapes, one can get the bees out of a super in about half the time that is required with the Porter escapes, and run very little risk of bees and honey getting too hot.

* * *

Chilled brood in colonies having swarmed during the past cold weather was not uncommon. The loss of bees from all colonies was greater than I had thought could be possible. I had colonies hived on full sheets of foundation six weeks ago (now May 28) that drew their foundation the first week or ten days after being hived, that now have many less bees than at that time.

* * *

Dr. Miller says, page 393, May 15, that if he had my locality or bees (he wonders which it is) he would suffer no two-year-old queens except a few extra good ones. It is not the bees. I have tried stock from all over the United States, and the result is the same. I requeened most colonies last season and will make a clean sweep this year of all queens one and two years old. I cannot afford to have even ten per cent of my colonies with poor queens in the busy part of the season.

* * *

An orange-grower a few days ago said to me he was afraid the set of fruit would be small, owing to the fact that bees could not reach the bloom during the greater part of the blooming period. A few growers realize the importance of the honeybee in fruit-growing; but the majority let others do their thinking to about the extent that is done in other lines of business. In this connection I give the following clipping from the Kansas City *Star* of May 19:

SAYS "KEEP A BEE."

A. D. Wolfe, secretary of the Missouri Apicultural Society, talked at the meeting Saturday and recommended the keeping of bees in every orchard, home or commercial. Mr. Wolfe did not talk from theory, but made his speech largely a series of citations from the experiences of fruit-growers and beekeepers. Three essentials were necessary to grow fruit, he said—weather, spraying, and bees.

If a stand or two of bees is kept in each orchard the fruit will be larger, better-flavored, better-colored, more abundant, and of better keeping quality, he said. Apples and cucumbers particularly are benefited by bees, while strawberries near the hives frequently produce fair crops that would have been failures without bees. For example, he cited a fifteen-acre strawberry-field that lost practically all its first blossoms by frost. The second blossoms that came on, naturally, were weak and would have set little and poor fruit had not the bees pollinated them in seeking honey.

## Beekeeping in the Southwest

*Continued from page 484.*

a new location for increase. Set on a bottom-board, each given a caged queen, covered up, and the entrances closed with green weeds or grass, they will take care of themselves. After the queens have begun laying these nuclei may be strengthened by simply setting another of these supers on each one. This second lot of supers will come from colonies that had not yet begun work in the comb-honey supers sufficiently when the increase was made.

# CONVERSATIONS WITH DOOLITTLE

## At Borodino, New York.

BEGINNING IN BEEKEEPING.

"I am about to start in beekeeping. How many colonies should I start with, and about what should be the outlay? At what season of the year would it be best to begin?"

The spring is the best time to begin beekeeping, and May or the first part of June the preferable time. Then the bees should be in a condition in all northern localities, so that "spring dwindling" will be past. If a good colony is selected on the first of June, it will be ready, usually, to take advantage of any honey harvest which will come after that. If you have on hand a surplus hive and super for each colony purchased, you will be in good condition for a successful outcome from your first venture with bees.

As to the number to start with: If you have never kept bees, nor had any schooling with some good apiarist, my advice would be to purchase not more than from two to five colonies; otherwise your increase at the start may become out of proportion to your gain in knowledge, and thus you may make a failure and become discouraged through your knowledge not keeping up with the number of colonies. One of our best beekeepers, who has accumulated quite a fortune from his sales of honey, once told me that he began with only two colonies, and that he considered that number as the best, and so advised all who appealed to him regarding the matter. This was the number of colonies I started with in 1869, so I quite agree with him in this matter. He told me that his start with bees cost him $25. I paid out $35 for my start; and after that I never paid out a dollar later until I had sold enough from the bees themselves to purchase those dollars.

But perhaps I should tell regarding an addition to this start which cost me nothing save my labor. Passing through a piece of woods one day in March, 1870, I saw dead bees on the snow under a tree; and on looking up I saw bees going in and out of a hole. I obtained permission to cut this tree, and in May I secured a fairly good colony, transferring the combs and bees to a hive I had made in April for them. In 1871 I set aside as many full combs of honey as I could obtain without robbing the bees I had. Then in the fall, wherever I could hear that any one was going to take up his bees, as they used to in those days by killing them in order to get the honey, I would offer to take the bees alive and give them the honey. Of course the farmer was out what honey the bees gorged themselves with in the drumming-out process; but as most farmers are tender-hearted they liked the idea of not having to kill the bees. I got several good colonies in that way.

I remember that one farmer had two small colonies or second swarms he was going to kill with burning brimstone, and he was glad to let me have them. He offered me all the empty comb there was in addition to the bees. I put the bees from the two hives together. As all after-swarms have young and vigorous queens which are liable to breed a little later than an old queen, this colony was composed of bees of the right age for wintering to the best advantage, while the queen would be at her best the following season. The result was that this colony gave me two good swarms the next year, and I sold honey from them to the amount of $18.76. When I jingled that money in my pocket I considered I had cleared that much, and added three colonies of bees to the apiary, besides saving the bees from brimstone torture and death.

"Do you think it profitable to save the bee-journals as they come, and pack them away? My wife does this with her magazines; but the papers I take generally go into the waste-basket."

If you do not follow your wife's example with your magazines you will show poor qualifications for a successful outcome with the bees. And, remember, you're not to allow those bee publications to lie packed away till you don't know the year dated on the first volume you have. I have nearly every issue of every bee-journal published in the United States, and most of them bound, and at my fingers' end whenever I wish to refer to them. I prize them very highly. I have had a chance several times to part with them, but have always refused. These papers have been very largely the means of making me what I am as a beekeeper to-day. They have walked with and talked to me all along down through the weeks, months, and years for a generation, giving me good advice and wholesome doctrine regarding our beloved pursuit. In fact, I have grown up with them and they with me, and to part with them would be like parting with one of the family. I am continually getting new thoughts out of them as I handle them over.

# GENERAL CORRESPONDENCE

## ON THE BRINK OF OWEN'S VALLEY

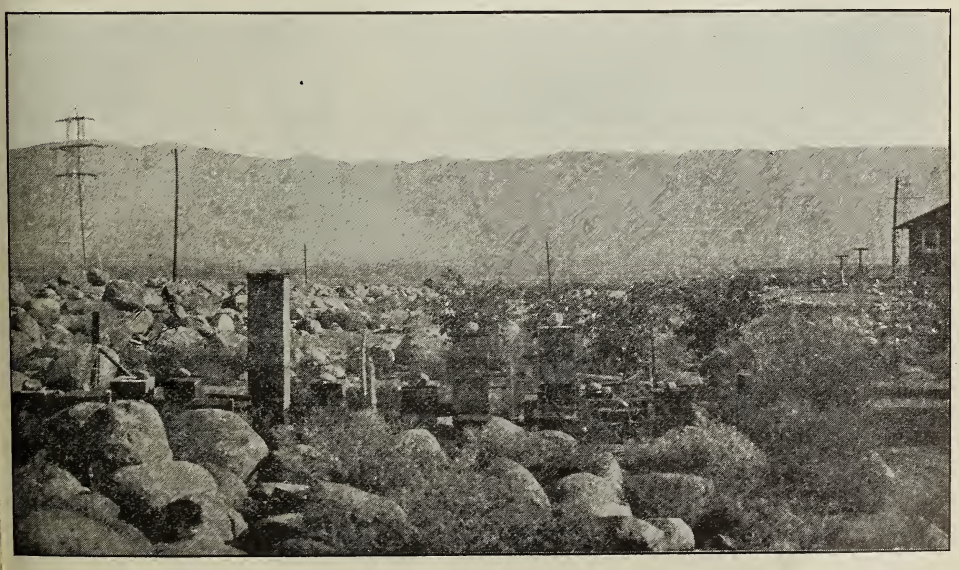
BY GEORGE M. HUNTINGTON.

The first illustration of my beeyard, taken Sept. 1, 1913, shows the hives before the supers were removed. The hive at the right, without any super, is empty. The season of 1913 was started with five colonies and four nuclei, and ended with ten full colonies and a crop of 17 cases of comb honey of 24 sections each.

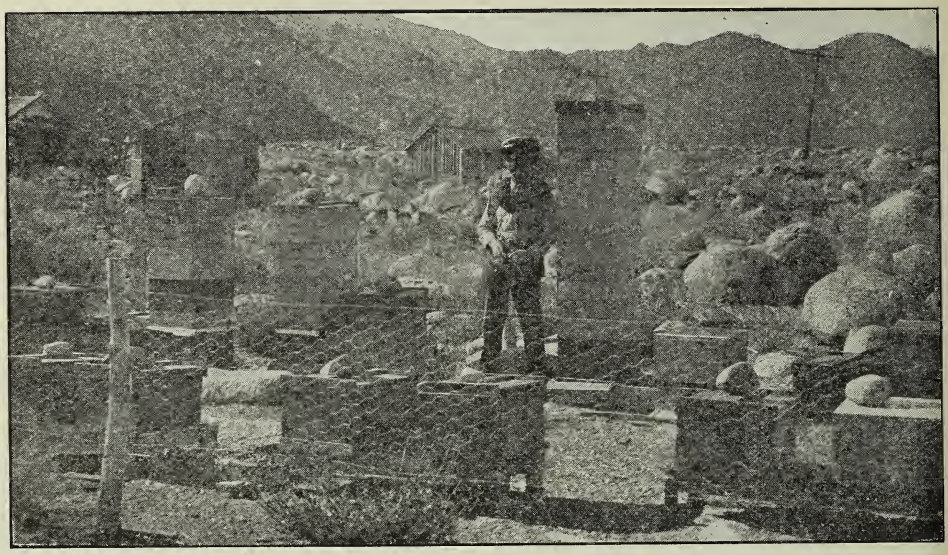
The bees were flying about nearly every day up to Jan. 1, 1914, which was very pleasant. They had a playspell during the warm part of the day; but winter commenced that night and lasted till Feb. 1. A few days later I gave them graham flour and bran to work on as a pollen substitute. The bees had commenced to look over the alfalfa-blossoms in the haystack, hunting for pollen. I put the graham and bran in an empty hive with some pieces of glass, partly covering the top of the hive. In another hive I put a pan of water with excelsior in it with pieces of glass partly covering the top so as to give some circulation of air. The hives would become too warm if fully covered. The bees also used the top for exit. Nearly all entered at the regular hive-entrances.

Brood-rearing commenced at once. Early in April I had to take frames of brood from the strongest colonies and give some full sheets in order to hold back swarming or to check the queen's activities. Hive No. 8 had used nearly all their stores in brood-rearing. Three frames of brood were removed, and one empty comb, one comb of honey, and one frame of foundation given to replace the frames of brood. Then a super with twelve cull sections of honey was placed on the hive. On May 5 two more frames of brood were taken away, and two frames of full sheets given.

The super with the twelve sections was removed on May 12, nicely filled with fruit-bloom honey. Another super was placed on the hive with four bait sections. My record shows that this full super was taken June 1 with wild-buckwheat honey and some sections from mixed sources. This stand of bees, No. 8, can be identified in the four pictures of Nov. 1st as the one with twelve supers, showing how it would appear with the season's crop all on, 335 filled sections and one bait section with comb fully drawn but no honey in it. Out of the 335 sections



G. M. Huntington's apiary, looking across Owen's Valley toward the White Mountains.



Twelve supers containing 335 filled sections, the season's harvest from one hive.

there were thirteen that would grade as culls an account of not being fully capped over. All of the rest were No. 1 sections Some were a pound, and nearly all above 13 oz. net.

In one of the pictures I am standing next to No. 8 for a comparison of heights, my height being 5 feet 10 inches. Each hive requires a stone on the cover to keep it from making journeys. As you will see, nature has provided lavishly of these necessary articles, and there are spare stones for more hives, but no places to locate any more hives.

The next hive with comb-honey supers to the left is my first swarm of the season, cast May 5. It produced 196 sections. The next to the left of it, in front of the honey-house, produced 103 sections and 101 lbs. in brood-frames filled with full sheets. The second swarm was cast May 6. In the distance are the Sierra Nevada Mountains. My other increase (three colonies), produced 72 sections, 71 sections, and 73 lbs. in ten new brood-frames. The 1914 season's production from the ten stands as shown in the Sept. 1st, '13, picture was five colonies increase, or 50 per cent, and 81½ 24-section cases of comb honey and 30 new brood-combs filled with honey. These brood-combs are for spare stores to replace some old combs which I may wish to cull out in the spring if any stretched cells or drone-cells are found. Every inch of my brood-combs must be working, and contain worker-cells.

The view across Owen's Valley shows in the foreground the trees where swarms cluster to be hived. I climb down instead of up, as is the usual manner of getting to the clusters—down on my knees. Seen in the distance are the White Mountains, elevation over 12,000 ft. In another view (cover picture) the Sierra Nevadas rise in the distance with snow-covered peaks over 14,000 ft. in elevation.

The nearest alfalfa in this location is 1¾ miles away, and not more than 200 acres within a two-mile circle, all on the side toward the White Mountains. The Owen's River Valley is here about 14 miles wide. In some of these pictures two hives are shown that were moved in at the close of the season from a neighboring apiary.

I am inclined to credit my season's success to a correspondence course in beekeeping which I finished about two years ago.

The diploma I received, and the crop produced, have promoted me from the A B C class to a fairly good start in the Division of Agricultural Education Correspondence Course No. 15 of the University of California. This calls for some brushing up of the botany on which I had never done any reading. But I hope to live through it, even if do have to make sketches of bees' tongues.

Bishop, Cal.

# EFFICIENCY OF THE FOURTEEN-FRAME HIVE

BY J. E. HAND

On page 148 the editor accuses me of using the Long Idea hive, and quotes Mr. Poppleton as saying that the convertible principle of wintering bees is very old—a statement which the editor seems pleased to emphasize. He might have added that it is also very efficient, a fact that I am especially pleased to emphasize. It matters little whether the convertible hive is new or old, so long as it is thoroughly competent.

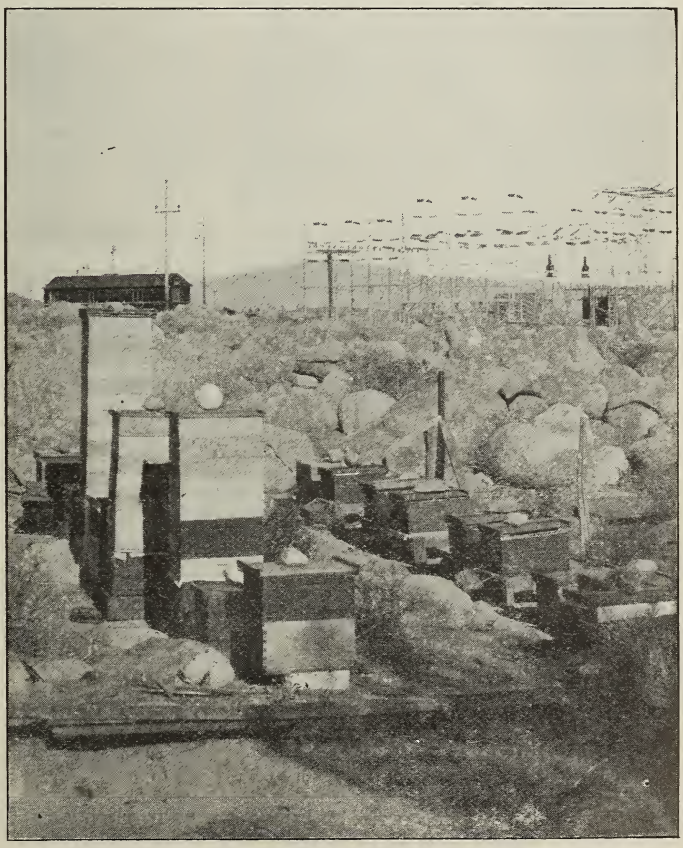
Profits in beekeeping are not governed by the amount of honey produced, but rather by the cost of production. Proper beehive architecture is virtually a matter of decreased cost of honey production by economical methods. The value of a hive is measured by its solution of problems inseparably associated with honey production—namely, the breeding, the swarming, and the wintering problems. A hive that solves these problems is thoroughly competent. Efficiency consists of fitting the hive to the principle, regardless of size, instead of trying to cram a great big principle into a little hive. The idea of recommending a hive simply because one man can handle it easily is like recommending a horse that one man can hold by the traces. The twelve-frame hive is uneconomical for reasons just given. "So near, and yet so far."

THE BREEDING PROBLEM.

Since horizontal expansion of brood-chambers and vertical expansion of supers is generally recognized as the correct principle, a competent breeding hive must be large enough to accommodate prolific queens. It has been ascertained that 14 Langstroth frames are the limit of expansion consistent with queen fertility; hence 14 frames is the limit of practical expansion, and 20 x 24 inches the dimensions of a competent breeding hive.

THE SWARMING PROBLEM.

While large hives do not prevent swarming, they are important factors. Swarming is not a premeditated act, but the fulfillment of a natural impulse in which restricted breeding room or diminished queen fecundity, or both, are the active forces. Unlimited breeding room and undiminished queen fecundity means little swarming. Requeen before the zenith of fertility merges into broodiness, for broodiness begets supersedure cells; and supersedure cells beget swarming, on conditions. Broodiness in queens, as in hens, is a period of temporary exhaustion of fecundity during which the ovaries are speedily developing another batch of eggs. During this period of broodiness which varies in duration with



More stones, and a substation of the Southern Sierra Power Co.

different queens, the mother-instinct predominates, and the queen will lay eggs in queen-cells, and at no other time. Hence cells built with a laying queen present are always supersedure cells resulting in supersedure of swarming according to the condition of the queen, colony, and honey-flow.

When we understand bee nature and the laws that govern the swarming impulse we can prevent it intelligently and economically by the following method: At the beginning of clover bloom make all colonies strong by uniting and equalizing, and take two combs covered with bees, including the queen, from each fourteen-frame hive, substituting empty combs and a ripe queen-cell in a cell-protector. The two combs and queen are placed in a thin-walled wintering-chamber for increase at the close of the basswood harvest.

### THE INCREASE PROBLEM.

Ordinary methods of forming increase are objectionable on account of the labor involved in building up nuclei by stimulative feeding and by peddling combs of brood. Hence a more rapid and economical method is imperative when much increase is desired. A competent hive contains all the material for 100 per cent increase in full-sized colonies simply by utilizing extra combs and bees on hand at the close of the harvest. Here is the method: At the close of the basswood harvest, after the honey crop is secured, the hives are literally overflowing with bees and brood, and this is the time to form increase economically. Cage the queens in the nuclei mentioned under swarming, and take six combs containing brood covered with bees from each fourteen-frame hive, placing them in each nucleus hive which now holds 8 combs, and the parent colony will also have 8 combs, and both have laying queens. I regard 8 frames as a practical wintering colony, and give no more except in case of an unusual fall honey-flow. In this way a competent hive solves the increase problem with the utmost economy, securing 100 per cent increase and a full crop of surplus honey while paving the way for an economical solution of the wintering problem.

### THE WINTERING PROBLEM.

Ordinary methods of outdoor wintering consist of enclosing hives in winter cases with suitable packing between. Winter cases are idle seven months of the year. The thick inner walls and thin outer walls are poor protection. In a northern winter sunny days are scarce, and chilling winds are the general rule. It is advisable to make the outer case of thick lumber and the inner case of thin material that the heat may penetrate the packing and maintain an even temperature in the inner chamber, which should be contracted to the fewest combs required to hold sufficient stores. The convertible principle makes a competent hive serve as a winter case providing perfect winter protection with no extra equipment except a thin-walled inner chamber 12 inches wide inside and 12 inches deep, made from old packing-boxes. These are used in summer for nuclei, increase, etc., and are not idle capital. Since half the colonies are already in their wintering chambers these are placed on the floor inside a regular fourteen-frame hive lengthwise, and the frames at right angles to their accustomed position, and at right angles with the entrance which is at the end. This creates a space of 2½ inches surrounding the inner chamber except the front end, which is pushed up tight against the hive with a heavy sheet of insulating paper between. The extra depth of the inner chamber (12 inches) provides a space of 2½ inches under the combs, while a full-sized upper story holds 8 inches of packing on top of the inner chamber. The whole is kept snug and dry by a three-inch water-proof cover. The parent colonies are treated in like manner, and all are snug and cozy in their winter nests at a cost of 25 cents for equipment as useful in summer as in winter.

With an outer case ⅞ inch thick, and an inner chamber ½ inch thick protected with heat-retaining packing, the temperature on both sides of the inner walls will be practically the same, especially with extreme contraction of the winter nest, which is the key to successful outdoor wintering. Moisture will not condense, but is conducted out through the entrance after every particle of heat is utilized to maintain a normal winter temperature without extra consumption of food. Heat is generated by the oxidation of food and vital energy expended in muscular exercise. To allow heat to escape from the winter nest by upward ventilation through porous packing, erroneously called an "absorbent," wastes bee energy. Sealed covers on the inner chambers under the packing preserve the heat. This principle is thoroughly scientific, and requires extreme contraction in a well-protected hive with an entrance ⅜ x 10 or 12 inches to conduct away humidity by diffusion with the circulation of air in the deep air-chamber under the combs. I began with a sixteen-frame brood-chamber, but soon discovered that while bees, if crowded for room, will adapt their work to existing hive proportions, they have a decided preference

FIG. 1.—First position in reversing the comb. This commences a continuous sweep of the frame, which never allows the comb to be held flat, unsupported by the frame.

for vertical expansion beyond a certain limit of horizontal expansion. The outside combs of the brood-chamber were entirely neglected. I moved filled combs to the outside, an inconvenient manipulation with a brood-chamber under a heavy super. Hence I reduced the size of brood-chambers to 14 frames which I now regard as the limit of expansion consistent with queen fertility, and the limit of contraction for the solution of problems.

Viewing it in this way the Long Idea principle cannot well be combined with the supering method, and exclusive horizontal expansion is contrary to bee nature; hence excessive frame manipulating is required in moving filled combs to the outside, substituting empties in the center to insure good work and prevent swarming; for bees will swarm from a 24-frame Long Idea hive with one-fourth of the combs empty.

The solution of problems is possible only with correct principles of beehive architecture consisting solely of 8 inches of horizontal expansion added to an ordinary ten-frame hive Eight inches of horizontal expansion, at a trifling cost, changes a practical nonentity to a degree of efficiency hitherto unrecorded in beehive methods.

The method of increase outlined in the foregoing demonstration is for a clover and basswood location. In locations where the main harvest comes in August and September it is advisable to form increase in June by the method given.

Birmingham, Ohio.

## HOW NOT TO DO AND HOW TO DO.—III

### Beginning in Beekeeping; Handling Combs

BY R. F. HOLTERMANN

Perhaps there is no operation in beekeeping which is conducted in such a diversity of ways as the fundamental manipulation of the hive—viz., the handling of the combs, and there is no work in connection with beekeeping which has to be done more frequently. The most of our labor is done in order to secure fruit from it, and that being the case we do not wish to expend any unnecessary exertion upon it.

When a piece of work is not done very often, we are apt to think the expenditure of the minimum of energy is a matter of no importance; but let me say it is of very great importance. Individual acts put together become habits; habits in time become principles, be they right or wrong; and the result is they become the basis of action in our lives. If my training has been neglected I have to correct that training; and if I cannot do it in my own strength I can draw on an exhaustless store outside of myself.

It may justly be said we are born with

certain tendencies. That is undoubtedly true; but much can be done as to fitness, before the world's eyes, by training in the right direction. One must do work constantly in the right way until it becomes almost an involuntary act with him.

Fig. 1 illustrates my favorite position when examining a hive. The cover is taken for a seat. There is a cover for every hive. It should be convenient, and it should be just the right height. Each hive should have a quilt or honey-board under the cover. I believe that, in the United States, this is quite often not the case. There is one other position which I sometimes assume, but only when I am very tired—"played out;" but, on account of pressure of work, I cannot afford to stop working; that position is to get down on my knees by the side of the hive; but that is not a good position under normal conditions.

FIG. 2.—Raise the end in the left hand, bringing the frame to a vertical position.

With the elbows resting on the knees, as in Fig. 1, the weight of the comb is supported by the knees, and relieves the arms during examination. After the one side of the comb has been examined (note the top-bar on the upper side), to examine the other side I have a regular circling and sweeping movement of the comb to bring to view the other side. In no case is the comb to be held flat as in Fig. 6.

In hot weather a heavy comb will break out when so held, even if it is fairly well wired. If the comb is not wired and not well fastened at the bottom and at the ends, it is almost sure to break out. If the reader will take a comb in his hand, make a circling motion, following 2, 3, 4, and 5, he will get my method of turning a comb. In Fig. 5 he will see the comb with the top-bar at the bottom. When possible the sun should be behind the one manipulating the hive, allowing its rays to strike

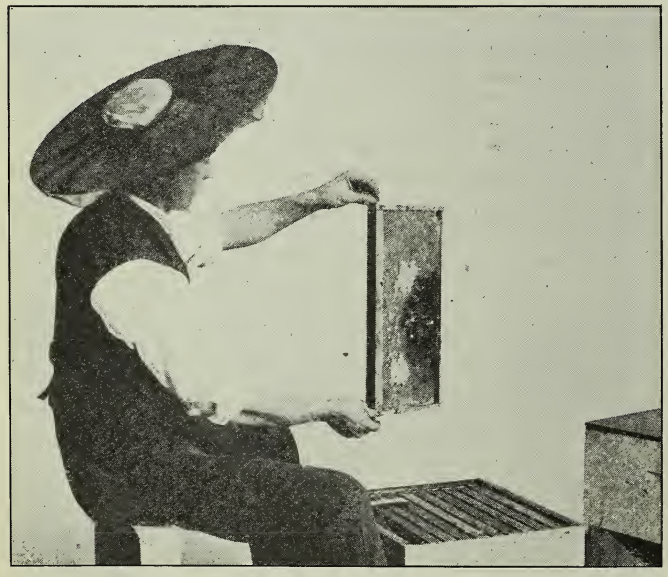


FIG. 3.—Twirl the comb with the top-bar as a pivot, the comb being supported by the end-bar.

into the cell where eggs are looked for. To find the eggs I sometimes have to step out from the shade of a tree and allow the sunlight to shine into the comb-cells. The same advice holds good in looking for the scale on the lower side of the cell. The light should then be allowed to shine on the lower side wall of the cells in the comb.

If the work is always done in that way a beekeeper is not likely to forget the proper way to hold a comb and hold it as in Fig. 6.

Make a system of handling combs and it will become a habit which will not require much study to maintain. But as a rule the people who forget the most, dislike system, although they need it the most. They would prevent much discomfort to people connected with them.

FIG. 4.—As the other side comes into view, lower the left hand. The comb rests on the top-bar.

Brantford, Canada.

## NET-WEIGHT LAW A STEP IN ADVANCE; CURRENT COLORADO COMMENTS

BY J. A. GREEN

The law requiring the marking of net weight on sections of honey seems to be causing a great deal of trouble and much apprehension among some beekeepers. While there may be some undesirable features about the law, it is in the main a very good one, and requires practically nothing more than many beekeepers have been doing for years. It will tend to enforce better methods of honey production as well as grading, both of which have been very much needed. The one who has carefully followed the grading rules established by the Colorado Honey-producers' Association will find it easy to go the step further required by the new law. The apiarist must adopt methods that will result in sections as uniform in weight as possible, and then assort them according to weight so that there will be little variation in weight between the sections in any case. It then becomes an easy matter to stamp every section of that case with a minimum weight that will fairly represent what the purchaser receives.

I am glad to see on page 922, Dec. 1, 1914, that R. A. Burnett is now ready to recommend grading by individual weights. When I advocated this in GLEANINGS some years ago Mr. Burnett was inclined to poke fun at me for going to the trouble of "weighing the honey for the retailer," but I felt well repaid for it in the higher price I was getting for my honey. "All things come to him who waits," and it is pleasant to see one after another of the things we old timers worked for in the past come into use now, even if we do not get the credit for it.

Before I leave this subject I wish to say again that it is a great pity that the majority of honey-producers still cling to the 1⅞-width section. Many years of experience in comb-honey production, much of this time using both sizes of section, have convinced me that the narrower section, seven to the foot or thereabout, will give more honey, nicer honey, and more uniform weights than the wider section which was adopted and continued in use merely because it happened to fit the hives and su-

pers then used, with a little less complication than a section that suited the requirements of the bee better.

The net-weight law should give the finish to the old idea that the regular 1⅞ section is a "pound section," and there is really no other reason for continuing it except the inertia of beekeepers, and especially of supply-dealers, and the slight expense of changing the old supers to accommodate a narrower section.

I honestly believe that the use of the 1⅞ section, instead of one better adapted to the nature of the bee, has cost the beekeepers of this country thousands of dollars annually. I wish I could prevail on them to test the matter themselves on a scale large enough and for a time long enough really to know for themselves.

FIG. 5.—The comb is supported by the top-bar at the bottom. It exposes for inspection the side opposite to the one in view in Fig. 4.

### THE ARMY-WORM AND CLOVER.

The statement on page 745, October 1, 1914, that the army-worm does not eat the clovers, is certainly wrong in this locality—at least so far as sweet clover is concerned. The army-worm was not very bad here last summer, but it was here in sufficient numbers to give a good idea as to its habits. One thing that impressed itself on me was that it evidently preferred sweet clover to alfalfa, or, in fact, almost anything else. They could be found in considerable numbers on the sweet clover along the irrigation ditches bordering the alfalfa-fields before they attacked the alfalfa at all; and I believe that, in many cases at least, they never entered the alfalfa-fields at all at such points.

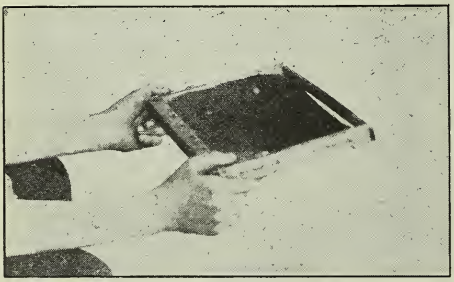


FIG. 6.—In no case is the frame to be held flat, the comb left unsupported, as in this illustration.

### YELLOW SWEET CLOVER.

Does any one really know anything as to the value of yellow sweet clover as a honey-plant? I should like to know. I used to think it must be very valuable, but for several years I had three or four acres of yellow sweet clover close by an apiary of about 50 to 75 colonies. They worked on it most vigorously. It sounded like a swarm of bees anywhere between the apiary and the clover-field, and there were few other bees in the vicinity. Yet there was very little show of honey in the hives. Perhaps they used it all in brood-rearing, but it seemed to me that the same acreage of white sweet clover, later in the season, would have shown more surplus in the supers.

### FOUNDATION SPLINTS.

If Jacob Alpaugh, after sawing his thin boards as described on page 940, 1914, will dip them into hot beeswax, pressing them closely together until it is cold, he will find it much better than the glue he uses. This is the plan I have always used, and which I described in GLEANINGS several years ago. I dipped the thin boards into the hot wax separately, piled them up, and put them into a press before the wax got cold. As soon as the wax cooled, this block of boards could be sawed up just as though it were a solid piece, yet the splints would separate as soon as they were put into hot wax. Mr. Alpaugh's description of the

way he inserts splints makes one wonder how long it takes him to prepare a hundred or a thousand frames. I do not use splints any more. One of my greatest objections to their use was the time it took, even when they were put in in the ordinary way. I consider that the plan of painting the foundation with hot wax, after it has been put into wired frames, gives better results with less labor.

DOES BOILING ALWAYS STERILIZE?

In addition to what I said on page 975, Dec. 15, 1914, I should like to add a warning against relying too much in high altitudes on boiling to kill foul-brood bacteria.

One thing that must be remembered, when it comes to the question of sterilization by boiling, is that liquids boil at a lower temperature in a high altitude, such as we have in the greater part of Colorado. Water boils, for instance, at 212 degrees at sea level. Here it boils at about 202 degrees, or eight degrees lower. In much of the beekeeping territory of Colorado, water boils at 200 degrees or lower. So the statement that boiling for a short time kills the germs of foul brood at Washington, D. C., might be perfectly true, and yet dangerously deceptive to the beekeeper of the mountain valleys of Colorado. Furthermore, bacterial life exists in two forms, and in the form of spores it will withstand a much higher temperature than in the ordinary form. I have seen the statement lately that bacilli that, in the ordinary form, were killed by a short boiling, had in the form of spores remained alive after being subjected to the temperature of boiling water for sixteen hours.

I have seen a great deal of foul brood, both in my own experience and in the capacity of bee inspector; and as a result of that experience I firmly believe that, for for the average beekeeper, destruction by fire is not only the safest but the cheapest method of cure.

Grand Junction, Colo.

## NOTES FROM GERMANY

### A Beekeepers' Association of Old Standing

BY J. A. HEBERLE, B. S.

In the year 1850, prominent beekeepers of Germany and Austria formed an organization to promote practical and theoretical knowledge of beekeeping. The organization called itself *Wanderversammlung,* and the meetings which are held annually are known by the same name. In 1885 Hungary joined the association.

The place where the session (which lasts several days) is held is selected at least one year ahead. The countries take a turn about—one year in Germany, the next in Austria or Hungary. Usually several invitations are presented. The selection is decided by vote. The inviting local club arranges for the time of meeting, and for an exposition, and provides for social entertainment and an excursion to some place of interest. The exposition includes bees, honey, wax, and products thereof; hives, tools and appliances, books, bee journals, etc. A considerable amount in premiums is distributed among the exhibitors according to the recommendation of the judges appointed for this purpose.

The most interesting part of these meeting are the numerous lectures by eminent men of science, and practical beekeepers, with the resulting discussions. This part of the program is arranged by the executive of the *Wanderversammlung.* For admittance to the exposition a small fee is charged to outsiders. These receipts and a contribution from the government usually cover all the expenses.

Each country has its own officials which arrange and conduct the meeting when held in their country. The officers—a president, a vice-president, a secretary, and four counselors are elected for a term of six years by a majority of the members present from each country. They may be re-elected. Any respectable beekeeper, by paying a fee of 75 cts. to one dollar becomes a member for that meeting—is admitted free to all the lectures, to the exposition, the entertainments, etc., and has the right to vote.

With few exceptions these meetings have been held every year. In June, 1854, the meeting that was to be held in Koln in August was, owing to the warlike disposition of Europe, postponed to 1855. In July, 1859, on account of war disturbances, the meeting was postponed till 1860. In June, 1866, the president announced that, "owing to the seriousness of the political situation which prevails everywhere, the meeting will not be held this year."

In 1913 the meet was held at Berlin. The exposition wound up with a deficit of

The apiary is exposed to the sweep of the winds.

about 10,000 marks. The expenditure was unusually heavy, and the patronage fell short of expectation. As the invitation of Berlin for 1913 was presented at Konstanz in 1911, some one warned against holding the meeting at so large a city. The numerous attractions of all kinds that are constantly presented to the public make these city folks indifferent to an exposition of bees, its products, etc., and predicted a lack of interest. The same voice, of course, did not fail to say, after the festivities were over, "I told you so." The fact is, all the expositions in connection with these meetings in smaller cities and large towns came out about even, or had a small surplus, while at Berlin, with its millions of people, the exposition was financially a failure. The exposition itself was creditable in every part—that was the unanimous judgment. The expenses may have been heavy, but it would seem that, by properly advertising it, patronage should not have failed. Why should such an exposition not arouse the interest of the city folks? I do not think that this one failure should prevent the *Wanderversammlung* at a future time from accepting an invitation from a large city as some have predicted.

In 1914 the perigrinating beekeepers assembled at Pressburg-Poszony, Hungary. It is a town of 80,000 inhabitants, an hour's ride on the express from Vienna. The reception of the beekeepers from afar, and the exposition, received the praise of all the visiting brotherhood of beekeepers. Hungary has better bee-pasture than Germany, and is noted for its water-white honey from the acacia (locust-tree). The exposition was opened July 26, and was to be closed on the 30th, but on account of the outbreak of war it had to be closed the next day. The visiting beekeepers, many from considerable distances, Germany and Austria, were advised to leave on the morning of the 28th. After that time the trains in Austria were for some time reserved for the war department.

Kempten, Bavaria, Germany.

## AIR DRAINAGE IN THE APIARY

BY E. F. ATWATER

For a long time the writer considered natural shelter to be a very desirable point in locating an apiary. For several years we had a yard consisting of 100 to 150 colonies, located where it was sheltered from prevailing winds by an orchard on the west and a railroad embankment, a few feet high, at the north. Previously the same apiary had been located some rods to the south, giving still better shelter, as hog-

houses and haystacks gave considerable protection from the south. The ground was level, with a slight rise to the north.

We seldom lost many colonies outright in this location, in wintering, but usually found it impossible to bring them up to the standard of the other yards with less shelter, at the opening of the flow, even though they were allowed more stores.

A discouraging feature each spring would be finding fully half of the bees of most colonies dead on the bottom-boards and part way up between the combs. This experience and others resulted in our theory of the necessity of sufficient air drainage for the best results in wintering and spring breeding.

Finally we moved this apiary. The only available location near was on a north slope, upon quite steep ground. Here the bees winter and breed up better, though exposed to the full blast of the northwest winter winds. We find that a south slope, not too steep, gives still better results; but we can not get as good results on level ground with natural shelter. The only reason that we can assign is the lack of air drainage.

This view was corroborated at the Idaho convention about a year ago, when Mr. Nelson, of Oregon, gave his experience on the same lines, saying that his best wintering and breeding yard was exposed to the full rigors of the winds.

The illustration will give some idea of the present location of the yard where these results have been so apparent. This apiary is on the north slope of the "Mesa," or bench, while high above it, a little to the south, runs the canal supplying water to the valley lands.

The sage brush in the foreground furnishes fair smoker fuel, though it burns out quickly.

This yard is run for extracted honey, and contains mostly Italian bees of a fine strain.

Meridian, Idaho.

## WHAT TO DO WITH WEAK COLONIES IN THE SPRING

BY T. DWIGHT WHITMAN

The question of how best to dispose of weak colonies in the spring is sometimes hard to answer. If they are united, in a short time you have one weak colony and nothing gained. A better way is to put a thin partition in a ten-frame body not over a quarter of an inch thick, so that the body is divided into two bee-tight compartments. Then arrange the bottom-board in the same way (see Fig. 1), making the entrances at the outside corners of the body. Place the frames occupied by the queens on each side of the division-board, any frames with brood in them coming next, and the frames with honey in them next until the body is filled; then your cover cloth and a tight cover over all. Leave them thus until they begin to get a little crowded for room. Put on a queen-excluding board, and on that a full-depth super body or super of sections.

You will be surprised to see how quickly the double hive will build up both before and after the extra body is put on, and how much heat is to be felt if you put your hand on one side of the thin partition when the bees are on the other side of it.

The two colonies do not fight in the upper body above the queen-excluder, but agree peaceably, and this upper body makes an ideal place to put a small queen-nursery (see Fig. 2).

My nursery, which shows in Fig. 1, in front of the bottom-board, is made from a piece of 1½-inch by 2¾-inch lumber with inch holes bored from the top as shown, to meet holes of the same size bored through the piece, the sides being protected with screen wire and the top with a tin slide. The slide is shown partly drawn out in Fig.

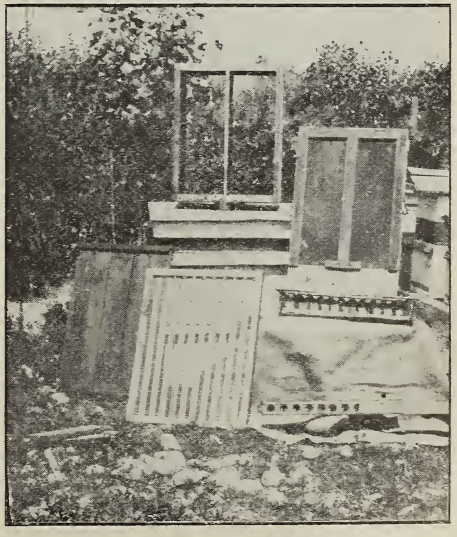


FIG. 1.—Double hive and bottom-board. In front of the latter is the queen-nursery.

1, in nursery at bottom of the queen-excluding board.

The holes bored from the top, stop on reaching the holes bored from the sides, leaving the bottom of the nursery of wood smooth on the bottom. This makes a good place to put artificial cells; or if the bees insist on building comb on the bottom of the nursery, as they sometimes do, it is easily scraped off with a hive-tool.

As the bees above the queen-excluder are practically queenless, they will readily accept a virgin queen if confined for a short time in a Miller cage as shown in Fig. 3. While they would feed and care for the virgin queens in the nursery, I found that it was not practicable to make use of a small door to the different cells in the nursery to allow the virgin queen to come out after she was hatched. The bees would always kill her. But I could form a nucleus of one or more frames of bees from the upper body, and by wetting them give them a virgin queen from the nursery. They would accept her at once.

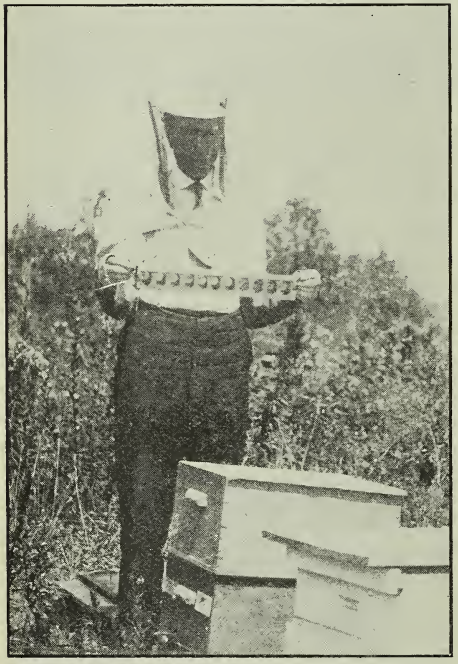


FIG. 2.—Queen-nursery for use in full-depth super above a queen-excluder on a double hive.

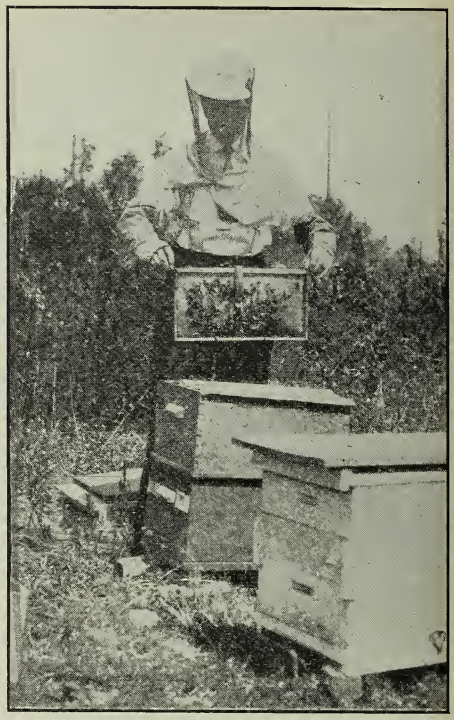


FIG. 3.—Queen in Miller cage ready for introduction.

As the double hive below supplied a strong force of bees to the upper body, they would draw out full frames of foundation very quickly, and this was a great convenience if I was raising a few queens for myself.

The bees will work together peaceably above the queen-excluder all summer, but must be separated before winter by extending the thin division-board to the cover or otherwise, or they will kill one of the queens.

Tacoma, Wash.

## PROPOLIS POISONING; ITS SYMPTOMS AND CURE

BY C. R. PARKS

Not heeding the oft-repeated advice to start with a few colonies of bees and work gradually into the business, Mr. De Loss Corey and I purchased slightly more than 300 colonies, and plunged into the game.

The first and most serious obstacle encountered by the writer was propolis poisoning. Never having heard of it, the poison was supposed to have come from ivy or poison oak; but salt water and soda (the

An apiary at Luxor, Egypt. Photographed by W. Percy Chase, Brookline, Mass.

remedy for these) would not cure it. Physicians were consulted, but they gave little relief.

I soon discovered that working with supers or old hives renewed or increased the poison; and on making inquiry I learned that propolis poisons some people. My eyes swelled almost shut, and the effect of the poison spread over a considerable portion of my body. The suffering was intense.

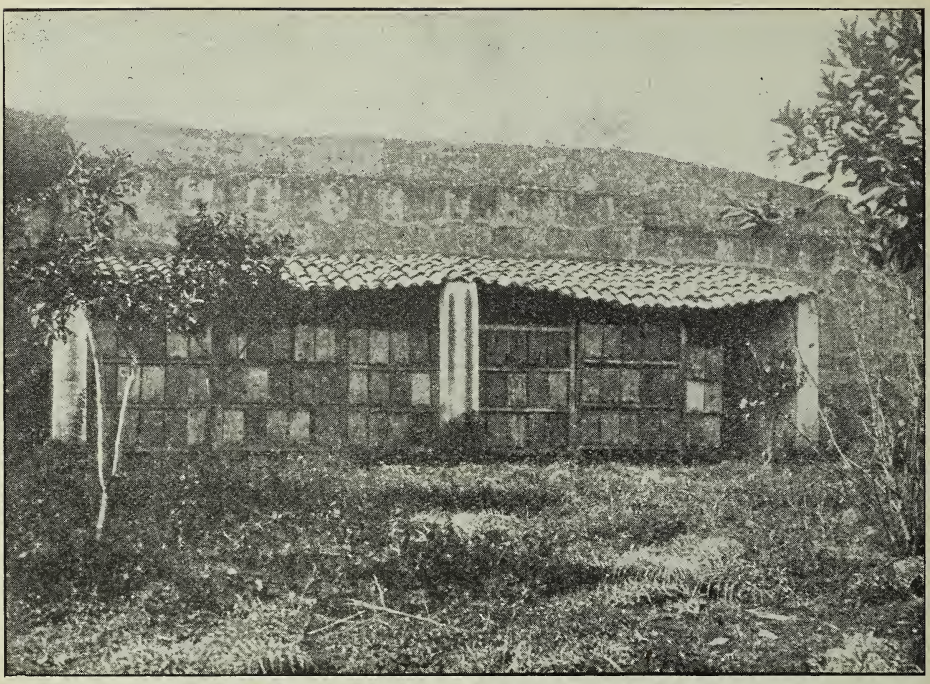
One doctor advised a mild solution of carbolic acid and water, which gave relief; and by increasing the proportion of the acid it would cure it, but often left the skin in an inflamed condition. I wrote to the bee journals and beemen whom I knew, but none knew of a remedy. Some of the propolis was sent to the Department of Agriculture for examination, but they reported no poison could be found.

That first season we averaged about $10 per colony. It was an unusual season. The next season a doctor advised me to try sugar of lead and tincture of opium for the poisoning. This I did. Two or three and sometimes four applications of this will cure it. I use it in about the following proportions: One teasponful of sugar of lead; one tablespoonful tincture of opium; about six ounces of water. Shake thoroughly, and apply with a small cloth or sponge. If too strong it will smart and burn; if too weak, more applications are required to cure.

At the end of the third season the writer sold out, Mr. Corey continuing in the business. We were living in the Plateau Valley, Colorado. Part of that winter and the following summer were spent in California. While there I applied propolis to my arm, and learned that it would poison me in California as in Colorado. However, the lure of the bee was too strong, and I returned to Colorado and from there removed to my present location in Utah, where I engaged in the production of extracted honey. In producing extracted honey I am not poisoned as much nor as severely as when producing comb honey.

Since coming here I have secured several valuable recipes for the relief of propolis poisoning.

The one I prize most highly is a powder —camphor, half a drachm; oxide of zinc, one ounce; starch, one ounce. Dust the affected parts well, and, unless it is a severe case, relief and a cure will be the result. This powder can be used about the eyes and other tender portions of the body without irritation; but it is well not to get it into the eye.



A Sicilian apiary, Taormina. Photographed by Mr. Chase.

Covering the hands and wrists with soap before working in propolis aids in preventing poisoning, and assists in removing propolis from the hands.

The following recipes are recommended:

1. Borax, two drachms; glycerine, two ounces; water, two ounces. Mix, and apply to inflamed skin.

2. Oxide of zinc, two drachms; lead water, one drachm; wine of opium, 4 drachms; rose water, four ounces.

3. Baume analgesique bengue will give relief, but will smart the eyes or other tender portions of the body. It can be secured from chemists.

Bear in mind that most of these prescriptions are poisons, and should be kept out of the reach of children.

Hayden, Utah.

## THE USE OF WIRE SCREENS AS A SEPARATOR IN THE ALEXANDER METHOD FOR WEAK COLONIES

BY JOSEPH J. ANDERSON

The Alexander method of building up weak colonies requires placing the weak colony over a strong one with a queen-excluder between. My experience has been that the bees from the strong colony below will frequently kill the queen of the weaker colony above, and so the practice of putting a sheet of wire screen over the excluder was resorted to, removing it at night after the bees were all settled and quiet with very satisfactory results. To save the trouble of going to the bees at night—quite a chore where one has outyards at some distance—I thought it would work all right to place a sheet of newspaper over the excluder, leaving the bees to eat their way through the paper and enter the upper hive-body at their leisure. Two seasons of this procedure have resulted in a loss of fully seventy-five per cent of the queens of the weak colonies. The paper idea won't do. It is unnecessary here to discuss the reasons.

On May 6 of this year I treated weak colonies at the home yard, some of them with not more than a few square inches of brood. As I went through the bees I mark-

ed all the weak ones, then an equal number of strong ones. On the latter I placed queen-excluders, and over these excluders wire screen. Then, on these strong colonies so prepared, the weak ones were placed. In the evening, when the bees were settled, I removed the screens. This is done with a quick jerk.

May 14 an inspection showed that every one of these formerly weak colonies had from three to six combs well filled with brood.

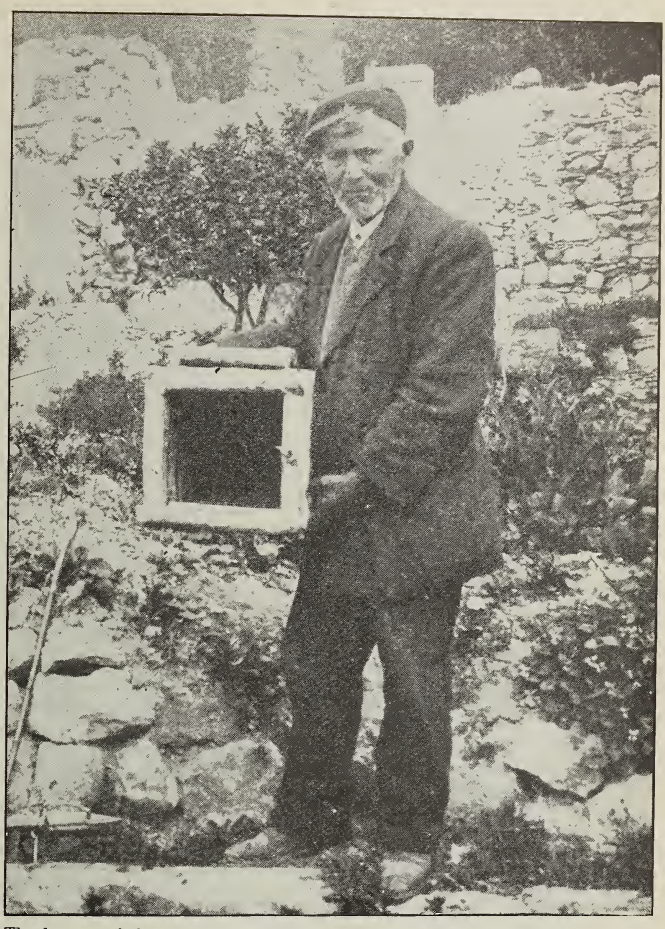
This method of building up weak colonies I call Alexandering. Uniform success will attend the carrying-out of the plan, as outlined above, at least in our locality. But don't fool with paper or any other modifications.

The weak colony so treated should be left on the strong one for three weeks or more; and if the queen is any good your hive will be filled from side to side with brood.

One of the bodies now set on a new stand, using your judgment as to which. Your weak stock has now become a rousing colony with force enough to render a good accounting of itself; whereas, if let alone it would have died out entirely or taken the whole season to build up strong enough for winter.

Making the sheet of wire screen several inches longer than the hive, and cutting it in two pieces with the ends overlapping in the middle facilitates removing the screen, as half can be jerked out in front and half behind without disturbing the relative position of the hives.

Salem, Idaho.



The keeper of the apiary at Taormina, Sicily. Photographed by Mr. Chase.

## THE EFFECT OF STORES UPON BEES

BY R. F. HOLTERMANN

Yesterday and to-day, although the weather is not very warm, we have been doing some needed work in two of the apiaries. In each we noticed a good deal of fresh spotting upon the black covers of the winter cases. I was much impressed with the condition, and I believe it is unusual for this time of the year. The spots were the excrement voided by the bees while on the wing, and it was almost solid, but strung out in lines. I attribute it, first, to the bad stores collected by the bees last summer, and which they are consuming now; next, to their confinement for unusually long intervals.

We have had three heavy frosts this

week. Those Monday and Tuesday nights were so severe that ice formed on a tub of water by the pump at our house. Another on Wednesday evening was not so severe. We also had two frosts last week. I do not know whether clover has been injured. It appears to me that vegetation must have suffered. I remember that, some years ago, after a frost somewhat similar, the farmers did not think frost had injured clover. Later it did not yield much honey, and when the farmers came to cut the clover the weight secured from the fields was a great disappointment to them. Time will tell.

I have a letter from a beekeeper in the Maritime provinces telling me that their bees had not been able to fly more than ten days since they had been placed on their summer stands. We have found it an advantage to give a five-pound jar of syrup to each colony.

Brantford, Canada, May 27.

## BEAR CREEK APIARY

BY E. R. ROOT

One afternoon when I was in attendance at the convention at Denver, Feb. 16 to 18, I took a drive out with Herman Rauchfuss, with several others, in his auto, out to the foot-hills of the Rockies, in the immediate vicinity of Denver. Not far from those foot-hills Mr. Rauchfuss has one of his outyards called the Bear Creek apiary. This contains 228 colonies of bees, and is arranged in rows in the manner shown. It is a neat, well-kept yard. I stopped long enough to take a snapshot, and here it is. The bees have a range of alfalfa and other mountain plants in the vicinity. The territory around here is not overstocked, says Mr. Rauchfuss, and there are other good locations where there are practically no bees.

I would hardly dare to make this statement that there is room for more bees here, as most good localities are already overstocked; but Mr. Rauchfuss is acknowledged to be one of the best beekeepers in Colorado. It is evident he knows this particular locality, and whether it will support any more bees. His attitude toward possible competitors is as generous as it is liberal. He did say, however, that one beekeeper had been there and "had gone, thank fortune." If *that* man ever came back there again he would—well—er, it wouldn't do to say what he said—not that it was not printable, for it was; but it is not wise to say everything you know.

The Bear Creek apiary at the time of our visit was wintering nicely as far as could be seen; but the thing that interested me particularly was the fact that there were a large number of Caucasians; Mr. Rauchfuss said, contrary to our experience here at Medina, that this strain had given him no more trouble in regard to swarming than Italians. They were earlier to breed up, and, in fact, for all-around bees he liked them.

The drive in and around Denver among the foot-hills is interesting. On the occasion mentioned we went clear up into the hill country; and when I say *hill* country they are some hills all right. The elevation of this yard must have been considerably over 5000 feet, as we were constantly going up, up, up, all the time after we left Denver; but the little machine was equal to the occasion, and for all-around beework there is hardly anything better than a light car. It costs less to operate it per mile than any heavy machine.

## BITTERWEED FATAL FOR WINTER STORES

BY S. A. FULLER

I have lost more bees this season than ever before. My colonies were never so strong in bees and stores in the fall. We had an early cold spell. When it warmed up, dead bees were hauled out by the thousand, and it has continued until now. Some strong colonies died out entirely, leaving quite an amount of stores. In all, up to date, I have lost 14 colonies out of 175, and many are now very weak. I have never had such an experience, and do not know what to make of it. Our fruit-trees (peaches and plums) are just now in bloom, a month late. We have had cold freezing weather with snow up to this date. To-day is the first real spring day.

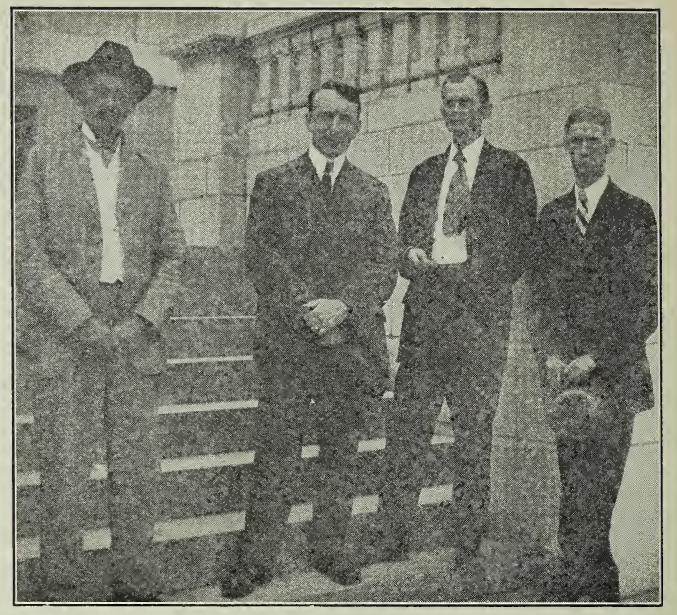
*Later.*—I had no aster honey last fall, but did have 1000 lbs. of bitterweed (yellow

Bear Creek Apiary, owned by Rauchfuss Brothers, near Denver, Col. This apiary contains 228 colonies, and is situated near the foot-hills of the Rockies, on elevated ground where the bees can command a view of the range and of the entire country. It is in this yard that Herman Rauchfuss has their Caucasians which have given them such excellent satisfaction. We wrote him, saying that in our write-up of the yard we would be careful about getting beekeepers to overstock the territory. On date of April 5 he writes, "You need not say any thing about the locality being overcrowded, for there are lots of good locations where there are practically no bees."

dog-fennel). I used to feed those colonies which were light the latter part of August and the early part of September. I had some fifteen swarms in October. I gave them two, three, and four frames of this honey, and they were the first to go. Those that I did not feed came through all right. Right now in front of 100 hives are enough dead bees to make an ordinary swarm; but now they are building up fast. I find twelve queenless colonies. I am quite sure in my case it was bitterweed which caused my trouble.

It was the first time my bees ever stored any of it that I detected. I noticed, in opening the hives after the swarms had died, there was a very foul smell. There are no other large apiaries here, but many of two to ten colonies. Many have lost all or a part of them. I hope we may locate the cause, and thereby find a remedy.

Helena, Ark., April 15.



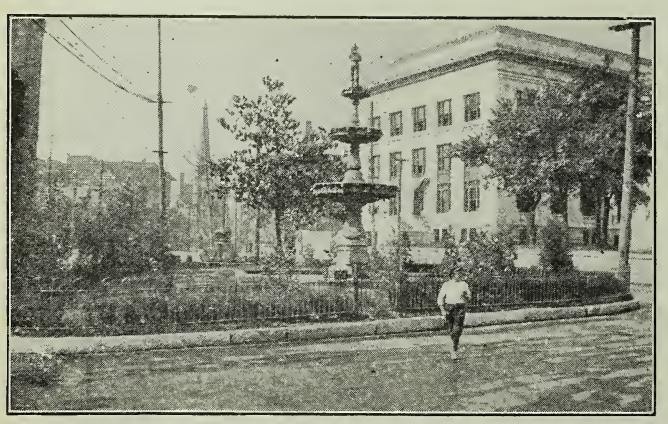
A group of speakers at the Tennessee convention. Left to right: J. J. Wilder, Cordele. Ga.; Dr. E. F. Phillips, Washington; Dr. J. S. Ward Nashville; and J. M. Buchanan, Franklin, Tenn.

## TENNESSEE BEEKEEPERS TALK OVER PROBLEMS

BY J. M. BUCHANAN

A special meeting of the Tennessee Beekeepers' Association was held at Chattanooga, Tenn., April 28, 29, in connection with the Southern Conference for Education and Industry. Dr. E. F. Phillips called the meeting to order, and gave a talk on the "Essentials of Beekeeping." "Sources of Tennessee Honey" was the subject of a paper read by J. M. Buchanan, of Franklin, Tenn., who also spoke on "Co-operation in Improving Beekeeping Conditions in the South." J. J. Wilder gave an interesting account of the honey-plants of Georgia and Florida.

On the second day the subject of "Disease Control" was taken up and ably presented by G. M. Bentley, State Entomologist, and Dr. J. S. Ward, State Apiary Inspector. Dr. E.



Franklin Triangle and court-house, where the conference meetings were held.

F. Phillips spoke on "The Need of Better Winter Protection." Dr. Ward and Mr. Wilder gave demonstrations on handling bees.

There was a good attendance at the meetings, and much interest was manifested.

Franklin, Tenn.

## THE TEN-HOUR DAY FOR BEES

BY C. E. FOWLER

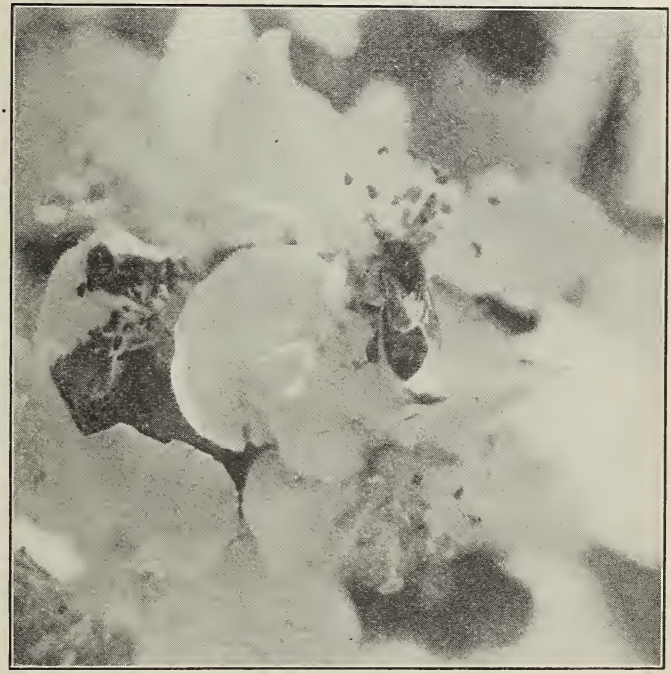
How far do bees fly? how long are they gone? how many trips a day do they make? are very interesting topics, and I should like to give a little of my own experience.

Last August, when honey was very scarce, a neighbor asked me to remove a swarm of bees from his roof so the carpenters could shingle it. I spent one day trying to save the bees, using first two Porter escapes; but the bees went right through them the wrong way.

I do not condemn the bee-escapes, as the bees were, most of them, trying to get into their home. Perhaps the inside bees, in trying to get out, wedged it open. After I got the escapes in place I could not get them off to look at them, as they were fastened on the inside. Then I made one out of watch-springs; and by the time I got it working the bees were going through the roof like water through a sieve, so I decided to sulphur them.

I commenced the next morning about seven o'clock, after most of the field bees were gone. After killing the bees in the nest with sulphur I commenced to kill the returning bees, supposing, of course, that they would all be back in a couple of hours; but to my great surprise they kept coming back for ten hours, and were still coming back at 5 P. M. The next morning there was a gill of bees in a bunch hanging on the edge of the roof. Now, some of these bees made only one trip in ten hours. How far did they travel? If they spent a third of the time going, a third loading, and another third coming back, and traveled 30 miles an hour, they must have gone 100 miles. Of course they did not go that distance; but how far did they go? They seemed to be coming back nearly as fast at noon as at 8 o'clock, and gradually dwindled until 5 o'clock.

I found that they had a great many holes in the roof stopped up which they opened when they could not get through the bee-escape.



Nectar and pollen from apple-blossoms. Note the mass of pollen on the leg of the bee and the manner in which the bee spreads the stamens to get at the nectary of the blossom.

The bees were in the gable end in the projecting cornice, occupying a space about 6 x 14 x 36 inches, and had stored about 50 pounds of honey.

As I was closing the hole I saw a lot of comb about two feet below, and thought I had discovered another swarm; but red squirrels had been robbing the bees, as the pieces of comb were mixed with nut-shells.

Hammondton, N. J.

# THE BEEKEEPER WHO IS NEVER STUNG

BY THE AMATEUR

He that keepeth bees among you, and saith he never gets stung, is a liar and the truth is in him not.

The beauty of using quotations from the Bible is that you can take anywhere from one word up and prove anything you wish to prove. The text here is partly from the Scriptures, especially the style, but mostly from somewhere else.

Being very susceptible for a time to all new ideas and innovations, I listened to the wise ones telling how they had handled bees for years and had never been stung. Of course I tried to solve the mystery, and pursued it as far as I could without putting up any good money for the "secret."

One day I questioned a wise man.

I now remember that none of those possessing the remarkable knowledge were among the successful beekeepers of the neighborhood. One day I questioned a wise man for two or three hours till he offered to sell me the secret for, I think, $3.49. I concluded he was still about a dollar too high, and that I'd better go home and look it up in the A B C and X Y Z. The nearest it came to what I wanted was that I should procure a veil, smoker, gloves, etc. But the wise man didn't use "sich truck." It wasn't necessary. Well, I gave up ever becoming possessor of the secret of knowing how to handle bees at all times under all circumstances without getting stung. But Fortune had ordained otherwise; for when my despair was the deepest the setting was being arranged for my entire enlightenment, and I didn't need to give up the $3.49 either. It all happened this way:

"Howdy, kid? Be ye the Amateur Beekeeper?"

One hot day in June when the honey-flow was going off I was grafting some queen-cells. I was busy at my work, and didn't know any one was within half a mile of me, when I heard a greeting from some one close behind me.

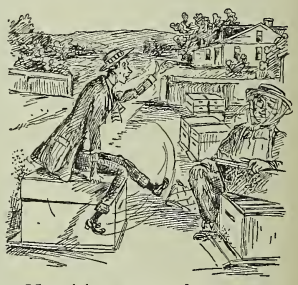
"Howdy, kid? Be ye the Amateur beekeeper?"

I looked up and saw a stranger. A description may as well be given here as anywhere. But the reader must bear in mind it was my first meeting with the stranger, and up to this time my last. He was a man about 45 years old, 6 feet 2 inches tall; and if he had been a beef steer I'd have said he was rather raw-boned; but as he was a man I might say his contour was irregular, with prominent facial features. He was dressed in a black suit made for his youngest brother. The pants, I well remember, fitted him snugly, and failed to connect with his shoe tops by two inches. This description may be wrong in parts, but I'll swear to that part applying to the legs, for I saw more of them than any other part.

I said, "Glad to see you. Yes, that's my name; but let me get you a veil. The bees are rather cross to-day."

He looked at me severely. "Now, look-a-here. I never take stock in sich truck—wouldn't wear it. Bees never sting me!"

"But," I persisted, "I have a veil in the honey-house, and my bees are quite cross to-day."



My visitor grew eloquent.

"Now, son, I handled bees when you wuzn't knee-high to a grasshopper, and I never wuz stung but twice in my life—onc't when I set down on a bee."

I don't remember now when the other time was, but presume it was when a bee sat down on him.

It might be well to state right here that this was the first time in my life I had ever seen one of those immune fellows among the bees, and I thought I might get a pointer or two from him while he was undergoing the acid test.

"I came up to talk to you about taking an agency on a gum I invented back in Missouri, and if you are the feller I take ye to be I'll give ye the exclusive agency of

this whole county; but ye're busy now; finish takin' them maggots out and puttin' 'em whar ye want 'em and I'll show ye the principles of a little model I have with me."

The grafting had been explained as I had read it in the A B C.

Every beekeeper is said to have in his apiary a colony or two that can be relied upon in an emergency, and I am no exception. Mine was next to my breeding queen; for though I requeened this colony twice it still retained its proclivities to sting on the slightest provocation, and I gave up trying to breed out this propensity, attributing it to "locality."

He trotted, ran, and then galloped.

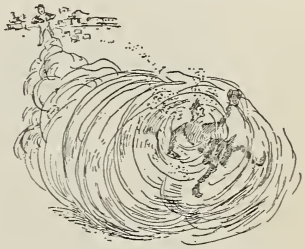
My visitor, in explaining his patent "gum," grew eloquent, swinging his leg like the baton of the musical director in an old-fashioned camp-meeting, and inadvertently struck the colony just behind him with his heel. Instantly they were upon him—ankles, legs, and face; and, although he protested fiercely that they didn't sting him when I asked him, I know that if bees were to go through the same process on my face I'd consider I had been stung. That is not all. They kept coming.

"Shall I give them smoke? I fear they will sting you."

"They won't sting if ye don't strike at 'em," he said.

Now, I am a rather human sort of person; and to clear my conscience I will confess that I was interested in (I almost said enjoyed) the situation. You would have thought those bees suddenly discovered some rare honey-plant right at their door from the attention they gave him. However, as they crawled up those tight black pant-legs they more nearly resembled bees trying to gather pollen from the goldenrod.

I did most of the talking now, for I didn't want to lose an opportunity of finding out how to keep from getting stung when in a tight place, and this man was backing off. Just then one hit him on the "dollar" of his nose. He snorted like a scared colt. I could see by the pained expression on his face that the half-hundred bees working on his legs were also beginning to penetrate the epidermis. I could no longer interest him in conversation. He backed off, tried to walk out of the apiary with dignity, but he couldn't get away fast enough. He trotted, ran, and then galloped. He bounded over the small brush like a tiger. Long after he was out of sight I could hear the smashing of limbs and the rolling of logs.



I had learned the secret of the fellow who never gets stung.

I don't know whether I was stung or not. I didn't feel it if I was. But I know I learned the secret of the fellow who never gets stung, and it didn't cost $3.49.

### Bees Rioting in Chili

In February, 1914, while walking along the banks of the Rio Grande about half a mile from my place, I came to an old log mill. Bees were so thick around it that it was almost impossible to see through them. Thinking they were after flour or meal I paid no more attention to them until three days latter when I noticed them coming in loaded with something red. I again went to the mill and found a Mexican grinding chile. In spite of the fact that he had smudges to keep the bees out, they were actually fighting and rolling in the chile.

This year in March, I noticed the bees gathering sawdust or anything they could get for pollen. I put some graham flour out for them, and some chile also. In a short time the fun commenced. The bees could not have been more excited had I put out pure honey. They did not disturb the flour until they had used up the chile.

Velarde, N. M. HENRY SEVERSON.

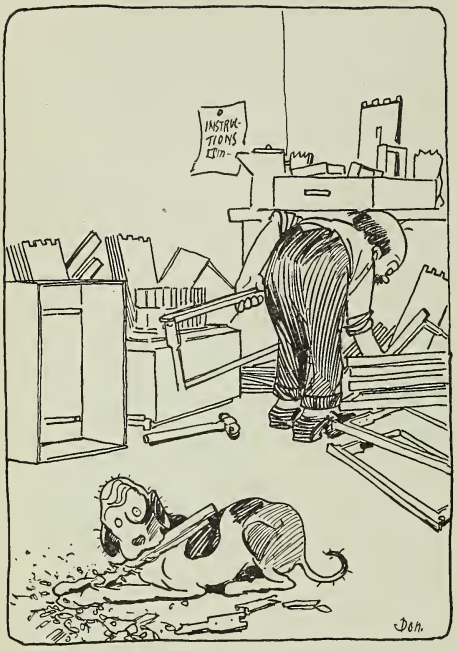
### Loafing in June

BY GRACE ALLEN

Well, yes; I admit it is prosily true:
There are plenty and plenty of things to do
Besides loafing here. But the wonderful bees
Are humming so steadily under the trees!
Then, too, there are roses and hints of a breeze,
And a marvel of green and blue!

Oh! how can you think on a morning in June,
When grasses are swaying and bees are a-croon,
That hurry and effort are always best?
My soul is adrift on a quieter quest—
The calm and content of a soft-breathing rest
As I pause with the bees in June.

# Heads of Grain from Different Fields




**The Backlot Buzzer**

*Well, here we are. Got 'em all nailed together but the last frame, and two pieces missing.*

## White Clover, but No White-clover Honey

Bees in this vicinity wintered well. Of 43 colonies cellared the last week of November, 42 came forth alive, and all in good condition when taken from the cellar, one half March 15, and the rest the first week of April.

The dead colony had no less than 20 pounds of honey, and the cause of death was paralysis with which they were attacked before putting into the cellar.

That surely is a fine picture of clover in Wisconsin, p. 360, May 1; but it does not look like white clover; and even if it is, it would be no guarantee that we should get any honey from it. As a matter of fact, we have had oceans of white clover in this section for the last two years; but it had no more nectar than pansy bloom.

Basswood, too, was nearly devoid of nectar in these parts last season.

White clover has wintered well, and we shall still look for honey from this source, even after our former disappointments.

Fruit-bloom is on, and the bees are improving their time gathering from the heaviest fruit-bloom we have seen for years. We have had no frosts to date to damage fruit-bloom. Dandelion bloom, too, is on, and is attracting the bees.

CARRYING BEES IN AND OUT OF THE CELLAR.

I read what Elias Fox says, page 382, May 1, on carrying bees out of the cellar by night, and wish to support his statement as being the best plan. I have followed this way for several years to my entire satisfaction. But for putting them into the cellar I reverse the time of day. Instead of the late evening hour I use the early morning hours, after a cool or cold night.

My working plan to put bees in or out of the cellar is this: I fill a large gunny sack with hay or straw, put it on my Daisy wheelbarrow, and very carefully put each hive on this cushion and wheel it to or from my beeyard over a carefully prepared way with so little disturbance of the bees that I hardly ever find it necessary to close the entrance.

Manawa, Wis., May 19. E. E. COLIEN.

## Avoid Too Thick a Fence Separator

In using fences for plain sections is there any advantage, aside from better-filled sections, in using a ⅜-inch-thick fence instead of the ¼-inch-thick fence? In using beeway sections as you do, the bees, in my estimation, get a little better than a ¼-inch entrance into the super, and I thought perhaps bees would more readily enter and work in the super with the ⅜-inch fence than when using the ¼-inch. What's the truth and general experience in this particular?

[Dr. Miller replies:]

It is not entirely clear just what you mean as to thickness. The fences I have are about ⅜ thick at the posts, with the rails of the fence, the separator part, about 1-16. Fences may be made of different thicknesses, and I don't know whether the ¼ you mention refers to the posts or the rails. However, the general principle is all the same, and the question is as to the effect of increasing the thickness.

In the first place, I don't believe you will find that enlarging the passageway will make any very great difference as to the bees passing through or working above. Anything more than a sixth of an inch (the slots in a queen-excluder are about 1-6) will give as free passage as an inch, and the bees will work just as well over it. If you increase the thickness of the posts without increasing the thickness of the rails, that will make the comb thicker, increasing the danger of marring it. If you increase alike the thickness of posts and rails, that will leave the comb the same thickness, but will increase the tendency to ridginess in the section.

On the whole, if you make any increase in thickness, better try it first on a small scale.

Marengo, Ill.

## The Critical Period in Queen Incubation

You have doubtless had experience in rearing queens in incubators with artificial heat. Can you tell me why it is that queens so reared out of contact with bees are so prone to die at the age of from two to four days? I have had a great deal of difficulty in rearing virgins past the fourth day; whereas if I get them five or six days old they seem to be able to live on almost indefinitely, or at least for a week or so. I understand my experience is common. I am pretty sure it is a matter neither of confinement, temperature, nor moisture, and have about decided it is improper food, but have not gotten any that will supply the need.

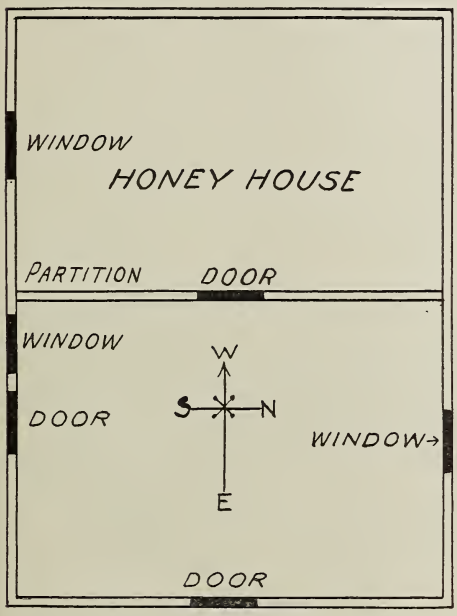
Seattle, Wash. GEO. H. BISHOP.

[Your trouble is doubtless due to having the temperature too high or too low. The internal temperature of a hive—that is, the proper one for raising cells—is a little lower than the temperature necessary for hatching eggs for chickens. We have referred this matter to our man who has charge of our queen-rearing, and he says that with plenty of ventilation, and temperature at about 97, he secures strong

bright virgins in an incubator; and that, moreover, he has no trouble in introducing them over four days old. Good extracted honey is the best feed for virgins. Get your temperature right and feed extracted honey, and you will probably have no trouble. —Ed.]

## A New Arrangement of Windows and Doors

In reading an article by G. C. Greiner some time ago I conceived the idea of having two doors in my honey-house. This makes it possible to keep one door open all the time, screened, of course, while the honey can be carried in at the other door, where the bees do not bother when it is opened and shut.




Bees escape from the window to the south in the room with the two outside doors. This gives light also while the doors are closed. It is quite close to the door, but there appeared to be no other place for it. It was necessary to have one window in the first room on the sunny side, since bees escape more readily on the warm side of the building.

The building is located west of the apiary, where it is both convenient and pleasant. Dimensions are 16 x 12.

East Avon, N. Y. A. C. Gilbert.

## Major Shallard's Honey-room Burned Out

In April I had the misfortune to have my honey-room at the home farm, South Woodburn, completely destroyed by fire. The building was of iron, 16 x 13 x 14, and contained among other things 2000 pounds of wax, eight-frame power extractor, wax-press, foundation mill, a quantity of carpenter's tools, jig-saw, etc. I first heard the roar of the flames at 8 o'clock in the evening; and on running out I saw the flames shooting out of the window above the extractor-stand. Help arrived almost immediately, and we got the engine and saw-benches away, and a quantity of hive material in the flat. We could get nothing out of the building. The heat from the burning wax was so great that it melted the iron castings on the wax-press and also on the extractor. An hour after the fire started the whole building was red hot, and looked like a gigantic glowing lantern. It was utterly impossible to get near it, and the water available had no effect. There was practically no insurance. I have the building up again all ready for extracting; but having to pay out £125 to replace the wax is not at all pleasant, especially as the season has been a very bad one. The loss is over £200.

S. Woodburn, March 25. Major Shallard.

## A Beginner's First Winter

Having spent the best twenty-six years of my life as a traveling man over the entire United States, and now having retired, and being a lover of bees, I have taken up beekeeping for the pleasure there is in it. While traveling I tried to keep four or five colonies; but not being here to care for them they were a failure, as everything is without proper care.

I purchased six stands of a friend, and went to work. Although the business was practically a total failure in Minnesota last year, I found myself in the fall with 16 colonies and 15 lbs. of section honey, aside from winter stores. All were heavy but five. I feared these five would not winter; but I fed them for two weeks on sugar and water, placed them in the cellar with the rest Nov. 15, with about 10 lbs. of stores each. I have a Root cellar separate from the furnace-room, in which I set the bees. Over the hives I placed a ventilator 2½ x 3 feet, with a 2½-inch pipe extending through the window.

To do this I took out one pane of glass and replaced it with galvanized iron, so I could cut the hole to fit my pipe. Twice a week when carrying out ashes from the furnace I would open all the doors to the outside, and let in the fresh air for ten minutes. In extremely cold weather I would open the door into the furnace-room every night, thus holding the average temperature close to 45 degrees all winter. I set them out April 4, and found them all in fine order, but thought best to feed the light stands for two weeks. All are doing finely. I think I have thoroughly demonstrated that cellar wintering is the most successful plan if thoroughly looked after.

This year looks now to be a much better season, two weeks earlier than last. In the place of natural swarming I will experiment with the Alexander plan of dividing.

Fairmont, Minn. M. T. Haines.

## Comb Honey from Two-story Hive

G. H. R., in Gleanings for April 15, page 335, in answer to W. L. Sherman, who asks, "What shall I do with my two-story eight-frame hives of bees in the spring when running for comb honey?" is mistaken when he says, "It is practically impossible to produce comb honey on top of a two-story hive."

I do not know how it is in Wisconsin; but I do know it works all right in Southern Florida.

In March and April the orange-trees bloom here, and my brood-chambers were so full last January that I thought of extracting a part of it from the frames to give the queen more room for depositing eggs therein, and have a larger working force when the orange bloomed. I undertook but one hive; and as there was but little bloom at that time producing nectar, the bees flocked in great numbers to the open hive, robbing.

I abandoned it, and thought out another plan. On each hive I placed one super of twenty-four sections on top of my eight-frame hives. I then constructed some brood-chambers without bottom-boards and placed them in the beeyard for future use.

My first swarm issued on March 15, and after that it was a daily occurrence until all had swarmed.

The swarms were hived in the hiving-box. The hive from which they issued was opened and the

combs examined. All queen-cells were removed, and the frames, bees, and brood placed in the bottomless brood-chamber. The old hive was furnished with empty frames; and the bottomless chamber, containing the frames and bees, was placed on top of the old chamber. The colony was then returned to old quarters—the old stand.

An entrance had been previously cut in the new bottomless brood-chamber, giving two entrances. I have already taken two supers of twenty-four sections each from many hives, and from all appearances at present I shall be able to get one or two more in a short time, leaving plenty of honey in the brood-frames for the colony.

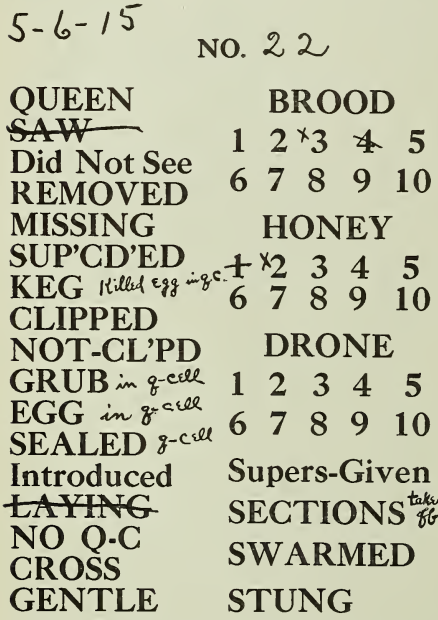
I don't expect to come anywhere near my old friend Dr. C. C. Miller in number of sections from one colony; but for appearance and quality I'd like to exhibit with him.

Tampa, Fla. WILLIAM P. HENDERSON.

### A Novel Hive-record

I find a record-sheet a great help in keeping track of the condition of my different colonies. The sheets may be filed away as a record, or copied in a record-book.

I find it much easier to scratch off this slip as the conditions are noted than to write each item down. It is much more accurate than to attempt to remember what one has seen after the work is done.




When the first frame is removed and found to be full of honey I draw a line through figure one, under "Honey." Frame two has some honey in, and a cross is put before figure two; frame three has some brood in; and figure three under "Brood" has a cross in front of it. Frame four is full of brood, and so figure four has a line drawn through. The queen is seen on frame four, and "Saw" is crossed off; and as there are eggs in the cells, "laying" is crossed off. If this colony is cross, "Cross" is marked off; and if I get a sting or two while working this colony, "stung" is marked; and if she has many records so marked when the time of year comes for superseding, her head is pinched.

The slips cost me about a dollar a thousand, and are put up in pads of a hundred each for convenience, and may be torn off as used.

Princeton, Ill., Feb. 6. G. R. RICHARDSON.

### Bee Gums in the Mountains

Bees wintered exceedingly well in this section of West Virginia—scarcely any loss at all. There has been a good early bloom, and bees have stored a little honey. Prospects are fine for a good honey year. How would some of you bee experts like to tackle a job of 150 colonies of bees in the old-fashioned round gum?

I just returned from a trip up the Williams River, trout-fishing. We stayed with a man who had about 150 stands, and every one was the round hive. I asked if they would not be better to handle in the modern hive. He said he didn't think they would, as he had never seen a patent hive. I explained the use of the modern hive to him, and he has a notion to try two or three when he gets time. On making inquiries about how they wintered he said he had lost only ten or fifteen this season, but last year he lost fifty colonies. He is situated among the mountains where the poplar and basswood are untouched. What could an experienced beeman do if he had his bees located where this man is? Don't you envy him?

Bolair, W. Va., May 17. L. W. STARCHER.

### Heavy Minnesota Loss

Bees in this vicinity are almost a total loss. I have saved perhaps more than any one else, but have only 50 colonies left out of 130 placed in the cellar. Many of those are very weak. Our largest beekeepers who had from 100 to 125 colonies each last fall have lost all or nearly all, while most of the small owners are cleaned out completely. Numbers of colonies died with honey in combs.

April was warm; but it turned cold and rainy as soon as fruit-bloom came on, and the same condition still continues.

On May 18 everything was buried in snow, and a hard freeze was on.

Excelsior, Minn. MRS. W. S. WINGATE.

### Calk Feeder with Paraffine

Mr. W. A. Sillifant writes on page 338, April 15, describing a method of making metal division-board feeders. If he will pour melted paraffine wax in the wood feeders, and, while hot, tilt the feeders so that it will run or flow into each joint of the feeder, he will have no trouble. What does not stick in the joints of the feeder should be turned back into the melting-pot. The wood can be made or bought cheaper than metal, and is not as cold as metal, even when coated with cork or sawdust both inside and outside.

Wabash, Ind. F. J. REDDIG.

### Low Prices in Fresno, Cal.

The honey crop of the mountain districts along the Coast Range will not be large this year on account of very little rain. We will hope for better prices than 3½ cts., which is being offered at this time. We have a fine quality of honey—always light amber—and it never granulates. It seems a shame that more of it is not used in the United States, and that we have to depend on Germany for our output.

Coalinga, Cal. MRS. H. T. CHRISMAN.

### Bees in Orchards

There is a kind of bee craze here now. All the orchard men are inviting the beemen to come on, and are buying hives to put in their orchards. Some time ago they wanted to declare bees a nuisance. "Every dog has his day."

New Almadin, Cal. PAT KEATING.

A. I. Root **OUR HOMES** Editor

Unto him that smiteth thee on the one cheek offer also the other.—LUKE 6:29.

Why lodge ye about the wall? If ye do so again, I will lay hands on you.—NEHEMIAH 13:21.

Behold, I create new heavens and a new earth; and the former shall not be remembered, nor come into mind.—ISAIAH 65:17.

*Mr. A. I. Root:*—I have often thought of telling you how I have enjoyed your Home department in GLEANINGS; but I notice a change in sentiment in the issue for May 15. It doesn't sound like A. I. Root—seems as if he were gone and somebody else had taken his place. I certainly feel that there were a lot of astonished readers when they read your answers to those two letters and noted your attitude in regard to the taking of human life. Right now the major portion of the world is in a great conflict —all struggling for the mastery. Right now when the subject is before the people, and the awfulness of war is in evidence on every hand, is our opportune time as never before to teach against it. That old theory of preserving peace by preparing for war has been proven defective, as the experience of the nations will testify. In your article you mention a few instances where a quick shot was effective in saving human life; but how would you like to be the one who fired the shot? Should we provide a six-shooter for our ministers, so they may have them in easy reach to use on some dear brother or sister in case of sudden violent insanity in the congregation? Are we not told to be wise as serpents and harmless as doves? Please don't hide behind George Washington. I do not think we should use him for an argument in favor of war. We have the Bible for our guide, and no one can read the teachings of Jesus Christ and believe them, and at the same time believe in war.

The chances are that there will always be war as long as this present dispensation lasts; but should the Christian people sit idly by and say nothing? or, worse, should they even say a few words in its favor?

You mention the man with "foolish religious principles." His principles are outlined in Matt. 5:38-45; also Luke 6:28, 29.

All the above is said with the utmost respect, and in a spirit of love. It seems to me we cannot be too careful about our influence. You are a man who has a lot of influence; and you are preaching to a large audience, and you will no doubt be held responsible for the position you take on this question. Let us not be wishy-washy. Let us take a stand on the side with the Master, for that is sure ground. I wish you would pray over this again; and, if the Spirit directs you, tell your readers about it.

John says we are to try the spirits to see if they are of God. See if they line up with the teachings of the word. I for one am not satisfied with your position, and I don't think the Master is either.

Morrill, Kan., May 27. F. E. POISTER.

Please accept my thanks, my good friend, for your kind letter above, although it is very plain and square-footed. Yes, you are right—my conscience did trouble me somewhat in regard to that Home paper, for it was, as you state it, a new departure; and yet God knows we need laws and *law enforcement*—yes, *better* law enforcement than we have had in times past. Permit me, dear brother, once more, to picture the circumstances under which I would use a revolver, if I had one, or anything else I could get hold of. Suppose a fiend in human form was trying to kidnap a young girl—say your daughter or mine, or it ought not to make any difference whose daughter she was. Suppose this fiend in human shape, as I have said, was carrying this girl away by force to bring her up to a life of shame. This has been done, and is being done just now, as our daily papers bear record. Now, if this imp of Satan could not be stopped in any other way, I would take a revolver or anything else I could get hold of, and *fight;* and if I succeeded in killing him I do not think my conscience would trouble me. The laws of our land, and the people, and the law of God would hold me guiltless.

There are other places where all or at least most of us are liable to be where, in order to save innocent, unoffending life, we must sacrifice a bad life. A clipping from the *Sunday School Times,* telling of how a missionary fought to save his life, brings out many important points.

Going to all sorts of places day and night as I did, in no case was I harmed.

Perhaps only once was I in personal danger; but the occasion was so interesting that there was no time to think of the danger.

I had arrived late at night at the home of a Christian. The country thereabout was infested with robbers, smugglers, thieves, disbanded soldiers, and destitutes and thugs—all tough to the *nth* degree. The people spoke bitterly of the inability and unwillingness of the magistrates to restrain them.

It was cold winter weather. The prophet's chamber I occupied had once been a stable, and, as a granary and general catch-all, had not yet lost its pristine flavor. So, as was my custom when not necessary to share quarters with my barrow man and others, I had stripped from the small window all the ragged paper that was pasted on the slats serving for a window frame, and had fastened the door wide open, and placed my folding-cot near it. Cold night air, deliciously fresh, filled the room. My room abutted on the narrow alley. In front of its door was a small yard whose streetward wall was about seven feet high.

During the night a slight noise in my room awakened me. By the light of a full moon, pouring through open door and window, I saw two men standing before one of my boxes, the one I had purposely placed in the corner of the room furthest from the door. It contained my personal effects, also payments for evangelists and schoolteachers—men who, for their part in the re-making of New China, receive the munificent salaries of twenty dollars a year.

The cover was up, leaning against the wall, and they were taking out the contents. To get out of the room they had to pass my bed—for which I was thankful. As a member of the University of Pennsylvania athletic squad I had been lucky enough to get on the police force of Philadelphia "for some inside experiences." In that work we had learned a few things that admirably supplemented some football tricks. I remember hurriedly thanking the Lord for it all. I got from the bed as cautiously and

quickly as possible, but not so quickly as to save a rush at me.

Chinese thieves expect no quarter, and usually give none When I retired I had mechanically laid a knife—big, sharp, and heavy—under my cot, within reach of my hand. It flashed over me: "Better not use that knife." And instantly I made a flying football dive for the foremost man, who was coming straight at me. I caught him in what is technically called "sure," just above the knees. The momentum of my weight toppled him backward like a log. He struck his head violently on the hard earthen floor, and one thief was temporarily out of business. I, of course, went down with him, and the other fellow was immediately on my back and brandishing a wicked corn-cutter. He lost it in the scuffle, and I was able to rise up with him clinging and shake his grip down to my waist. That was a poor hold to impede an opponent, as any football player knows.

Whirling hard, I broke his grip, faced him, and with a swift twist of his neck, tripped and jammed him down to the ground, knee on his chest, and fingers digging into his throat. The family heard the fracas and were soon on the scene, and in short order the rascals were bound hand and foot.

I had not time nor inclination to make a long journey to the county-seat and accuse the robbers before the magistrate. So I turned them over to the indignant villagers, who, under the village elders, gave them such a paddling as rascals rarely get outside the *yamens*. After some rough handling they were loosed, with the admonition that in the future, when out on their forays, they steer clear of that village.

Please note that this good missionary would probably have lost his life had he not in former years been a member of an athletic club. He was also an expert, as we take it, in football, and he says he remembered hurriedly to *thank God* for it all —that is, his first prayer was to thank the Lord for the *skill* he had acquired in athletics and football games. Now, here is one thing I admire him for. In contemplation of sudden attack he had placed a "big sharp heavy knife" within reach. He says it flashed through his mind, "Better not use the knife." I think it was the Holy Spirit that prompted this decision. He not only saved his own life, but he avoided taking life. In every emergency like this our constant prayer should be that we might avoid the *necessity* of taking life. In fact, I am not sure that we are ever excusable in taking life merely to save property. Just at this crisis in human history, it is right and proper that every follower of the Lord Jesus Christ should be considering and praying over this matter of war. My good friend W. A. Selser, of Philadelphia, who has no doubt been impressed with the Billy Sunday sermons, has just paid us a visit. He takes the ground, as I understand it, with the writer at the head of this article, that if Belgium had permitted the German troops to pass through their territory unhindered, and had turned "the other cheek also," as we have it in our text, this whole great war might have been averted.

Permit me, in closing, to give an extract from a sermon by our pastor, Rev. H. Samuel Fritsch, given to the remaining G. A. R. veterans on the second Sunday preceding Memorial day, May 23:

We need to remind ourselves that, just as God gives to different individuals different tasks, some one thing and some another, so also God gives to different generations different duties.

We need to remind ourselves of this truth, especially and particularly and emphatically in these days when half the world is war-crazy, and there is immediate danger of the other half of the world catching the disease!

There is a real and immediate danger that America, in the exciting and irritating atmosphere of the European war, lose her head. There are some people who feel that the only real patriotism is the patriotism that fights and kills. We need to remind ourselves to-day in unambiguous and unequivocal language that there are two kinds of war—necessary war which is patriotic and divine; unnecessary war which is treason and devilish.

You and your sleeping comrades served your country by the war method. You fought for a principle, for the perpetuation of the government, for the freedom of humanity. War was the task that your generation laid upon you, and we honor and commend you because you served your own generation in that generation's own and only way.

But it does not follow that therefore the task of this generation must also be war. I believe that, in spite of the irritating and iniquitous situation arising out of the European war, our President is right in his attitude of watchful waiting; and that to-day, from a mistaken motive of defending the national honor, to start a war and sacrifice the flower of America's young manhood upon the altar of jingoistic pride would be nothing short of damnable treason!

I believe that such men as Woodrow Wilson, William Howard Taft, and William Jennings Bryan are absolutely right when they assure us that America's task in this world-wide and world-wild holocaust and cataclysm is something other than war. And if the present generation in America is opposed to war and preaches against war, it is not that we denounce or discount the method and the task of the past generation; it is simply that we recognize the fact that the method and the task of the present generation is different from that of the past. And the only way in which we can serve our generation is to serve it according to the method and needs of our generation.

In regard to the scripture quotation from the good brother whose letter heads this Home paper, my understanding is that these passages in our texts refer mainly to neighborhood differences. It is a strong injunction to put up with injustice and abuse rather than to fight and go to law; but I do not think it applies to the midnight assassin. Under the influence of drink, or perhaps the modern dope, cases come up every few days where some wretch murders a whole family. Now, are we to understand that the father and protector of this family should do nothing at all to protect himself or the loved ones? Shall he not fight, and be ready to *take* life in order to *save* life, when no other course is left open to him? Will our good friend Poister answer this?

In regard to having a revolver right handy on a shelf under the pulpit, no, my good brother, I would not keep a revolver there, and I would not have it anywhere unless in the hands of a duly appointed policeman. Years ago I did have a revolver which I kept under my pillow; but after my conversion I put it away, and have never handled one since, and, in fact, have scarcely seen one; and since you call attention to it, I think now I would rather take the small chance of being killed myself rather than to keep a revolver, thinking the time might come when I could save my life by the use of it. My long-time friend who is taking down these notes suggests right here that the Pilgrim fathers always went to church with guns to protect themselves from the Indians; and a similar condition may even now exist in some parts of the world. In the book of Nehemiah we read that in building the walls of Jerusalem the men wrought with one hand and in the other they held a weapon. Shall we not face conditions as they *are now,* and work and *pray* for the time coming when such things will be *needed no more?*

The midnight assassin and the highway robber are, I am convinced, largely the product of our saloons; and when they are banished from the face of the earth the need of taking life to save life will have largely passed away, as in the language of our second text. Let me repeat what I have said about Manatee Co., Florida. There has never been a saloon in that county, and, God helping us, there never will be one. As a result, my good neighbor Mr. Rood had a poultry-house undisturbed for years right up against the fence along the highway. A passerby could, in fact, reach through and get a chicken if he wanted to, and yet our population is largely *colored people* whose loose habits and fondness for "chicken" have been proverbial. So long as we have the rum traffic we must fight. May God be with us, and help us in this fight until the partnership now existing between our nation and the liquor-traffic shall be ended.

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### SOCIALISM, CHRISTIANITY, ETC.

*Mr. A. I. Root:*—In my copy of GLEANINGS for Dec. 1, under the heading of Our Homes, I noticed your views of socialism expressed, as likewise our brother Boone's. You stated that you were liable to put your foot in a hornet's nest if you discussed this subject. GLEANINGS has always seemed to be an impartial magazine based upon truth and not fiction.

Mr. Root, I admire your religious views, and am a lover of the Bible; and it was the Bible, and particularly the teachings of Christ, that first opened my eyes to the glaring injustice of the present capitalist system. This system uses the dollar as it god, and it will end when one man owns the world and all in it. It has held up profits as its Christ. For profit the liquor traffic exists, the tobacco traffic also, and the present social evil.

May I not say you were mistaken or misinformed when you stated the Socialist party was in favor of the liquor-traffic? We are for the prohibition of the manufacture and sale of liquor, or at least the majority are, throughout the world, and, likewise, the upbuilding of the laboring class. All men are or should be laboring men by the Bible's teaching.

Now, Mr. Root, is it the laboring man or capitalist that finance the old parties? As it is the capitalist, how can the laboring man expect laws made in his interest?

As God has put enough food, shelter, and clothing into this world for all, why do not all enjoy it? Is it right for one man to corner or own nearly all the necessities of life and withhold it from the producers? Why are not the things used publicly owned publicly? or the means of transportation, production, and distribution? This would be like a swarm of bees all working and producing for the common good. What would you do with a colony of bees that would allow the first workers of spring that collect pollen to hold up the colony for ten cells of beebread apiece for it?

While I do not like the manner of the attack of comrade Boone, I still mantain that all laboring men should support the socialist movement; also all professors of Christianity.

Newaygo, Mich., Dec. 24. A. A. WOODRUFF.

My good friend, if I understand you correctly, as you state it I am a Socialist. I do most vehemently object to one man or a gang of men cornering the necessities of life; and I am strongly in favor of government ownership, so we can all share alike, as fast as it can be brought about. I am greatly pleased to hear you say, indirectly if not directly, that socialism indorses the gospel of Christ Jesus. If this is true, then I gather from reading a great mass of periodicals that a large part of the Socialist party are "away off" in their ideas and methods. As socialism is pretty well up before the world, I leave our readers to judge. I agree with you that our old political parties have been dominated largely by capitalists. But this is fast passing away. The laboring people, and especially the farmers, are making themselves heard. The downfall of the liquor-traffic is a striking evidence of it.

*Later.*—Since the above was written I have seen somewhere a statement in regard to the number of people employed in the liquor business who belong to the union. I think it was a good many thousand; and inasmuch as these would lose their occupation by prohibition, it was stated the union could not indorse nor recommend prohibition.

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### A LETTER FROM TROUBLED MEXICO.

*Mr. Root:*—The reason that I delayed sending my subscription was that it seemed that foreigners would have to leave Mexico. I have asked a friend of mine who lives in California to renew my subscription. It is a great pity that your articles on gardening are not more widely known. From what I read in GLEAN-

INGS I should judge land in Florida to be more productive than in this much-praised portion of Mexico. Take, for instance, cassava. It appears that 25 lbs. per hill is not uncommon. Down here three or four pounds is a big yield, and it sells for 5 cts. per lb. Thirty-five bushels of corn per acre is also a big yield here. Under these conditions, Americans, in order to exploit tropical agriculture, have no necessity for deserting the protection that the stars and stripes afford them. F. H. BREAKELL.

Perez, V. C., Mexico, April 29.

My good friend, I am sure that our Florida soil is, as a rule, no better than yours. Where we got great yields, say ½ bushel of dasheens from a hill, we turned under a great quantity of vegetation—grass, leaves, palmetto, weeds, etc. It was considerable labor in the first place; and since then we have been using poultry manure and stable manure and chemical fertilizers to some extent, keeping down all weeds until the cassava gets a start. There is also a vast difference in Florida soils. In fact, we often have good and bad spots on a single acre. But intelligent management will as a rule make the bad spots good unless they are exceedingly bad. May God grant that poor Mexico may have good protection, and that right speedily, such as we now enjoy here under the stars and stripes.

# HIGH-PRESSURE GARDENING

## SPINELESS CACTUS FROM TWO POINTS OF VIEW.

It is of great importance that the real truth about this plant be made known. On page 429, May 15, I told you of an advertiser who has ten different varieties, from 60 cents up to $5 a leaf. I am now going to give him some free advertising.

I have told you before that I have one leaf of the fruit-bearing cactus that cost me $1.75; and on page 473, June 1, we are informed there are buds on the leaf already, and we propose to keep our readers posted.

Now, here is a clipping from the circular that induced me to invest; and I must confess that the prospect of "fifty tons of beautiful and delicious fruit" is what got hold of me largely.

On good soil, some varieties of spineless cactus will produce fifty tons per acre the first year, one hundred tons the second year, two hundred tons the third year, and four hundred tons the fourth year, and fifty to two hundred tons per acre on poor sandy land, without irrigation or fertilizer, some varieties producing fifteen slabs the first year, forty-five the second, ninety the third, and one hundred and eighty the fourth. Some varieties will produce fifty tons of beautiful and delicious fruit per acre which can be kept like apples and shipped without ice, and which contains over 30 per cent more sugar than sugar cane does.

It has produced nearly fifty times its volume in one season, and over two hundred slabs from one slab within two years in north Florida, thereby excelling the world's record elsewhere. It is growing successfully in several places in Florida now.

Monticello, Fla. SAMUEL KIDDER, Nurseryman.

It is true I have had in mind writing my good friend Prof. Rolfs, of the Florida Experiment Station, but for some reason I have neglected to do so; therefore you can imagine with what interest I read over and *over* the following, clipped from the Jacksonville *Times-Union* of May 20:

FROM DIRECTOR ROLFS.

*Farm and Home*, of Springfield, Mass., had the following recently:

"In *Farm and Home*, November 1, E. P. Powell states that the Florida Experiment Station reports favorably upon the results obtained by growing spineless cactus without irrigation. This is quite contrary to the facts. The results of the Florida Experiment Station with the growing of spineless cactus have been about as unfavorable as could well occur.

"Further down in the same article Mr. Powell states that fat cattle can be seen at the station that have never seen water otherwise than that which is produced by the cactus leaves. This is also contrary to the facts in the case.

"All of our attempts to grow spineless cactus, which include thirty varieties, as well as the attempts of the Department of Agriculture, have given negative results."

This is signed by P. H. Rolfs, Director Florida Experiment Station.

This is not all the information of the same nature we have in our possession, but the above will serve to show what is the attitude of agricultural scientists regarding spineless cactus. These men have experimented without any prejudice or personal interest against spineless cactus, and their conclusions all agree as to its lack of real merit. We special agents of the United States Department of Agriculture are under instructions to conserve the welfare of our demonstrators and co-operators, and have no personal ends to gain in warning the farmer against engaging in undertakings that threaten to take his money without giving him any return for the expenditure of his money and labor.

The Department of Agriculture, as I understand it, has been for some years making tests of Burbank's spineless cactus in California. The bulletin concerning it can be had on application. I have already made mention of it. Now, it is exceedingly important, especially to the good people of Florida, that they should have the *real truth* in regard to the spineless cactus. It was Burbank who gave it the boom, or at least the Burbank Company. We have been repeatedly told that Burbank himself is not responsible for what the *Burbank Company*

claims and advertises. This being true, he certainly has the power to forbid the use of his name did he choose to do so. Our California friends—at least a great part of them—indorse Burbank, and they feel hurt whenever I presume to criticise him or the Burbank Company. Very likely new facts are being daily brought out in regard to the cactus as well as everything else. I regret that Professor Rolfs did not put a date to what he says above. I am especially interested because there are people in the neighborhood of our Florida home who have invested as high as 1000 "slabs" for one planting. I hope to give our Florida readers photos of these plants occasionally, so they can see for themselves what growth these wonderful "creations" (and I hope they honestly deserve to be called such) are making.

*Later.*—Our good friend Borchers, of Laredo, Texas, has sent us something like half a dozen bulletins from the Department of Agriculture in regard to spineless cacti. From a "summary" from one of these bulletins I clip the following:

THE PRICKLY PEAR AS A FARM CROP.

The experimental plantation cost nearly $9 an acre, including all expenses, beginning with the breaking of the raw prairie and ending with the cuttings properly placed. With good labor and proper management this expense, it is believed, could be reduced to $6 or $7 an acre. Even $9 per acre is low for a plantation that does not require renewing for fifteen or twenty years.

A conservative estimate of the annual production of prickly pear under cultivation is 22 4-5 tons, or enough roughage for one bovine animal for a year from each acre of ground. This is to be harvested biennially.

Cattle, sheep, goats, swine, and even chickens will eat the crop readily at any time of the year.

Eight times as much growth of prickly pear has been secured under cultivation as was obtained without cultivation in ungrazed pastures.

More than six times as much roughage (actual feeding value) has been secured during the past two years from prickly pear as from sorghum.

From another one I quote as follows:

Our experiments seem to show that when prickly pear is fed with cured fodders or grains the digestibility of both is increased. For this reason prickly pear has a greater food value than is shown by its analysis and digestion coefficients.

The steers seldom drank water when fed prickly pear alone. In fact, in feeding a ration of 100 pounds of this feed per day the animals obtained from the feed over 8 gallons of water, which is more than was usually drunk by them when fed cured fodders alone.

Animals scour quite badly when fed prickly pear alone; besides, other feeds are needed to supply the proper amount of proteids; and for these reasons it is better not to feed it alone.

A ration for a 1000-pound milch cow of 50 pounds of prickly pear, 10 pounds of wheat bran, and 10 pounds of alfalfa would furnish about the correct theoretical amount of nutrients, in which the ratio of proteids to carbohydrates would be 1 to 5.46.

As both the above were from bulletins published in 1908 (seven years ago), very likely considerable progress has been made; but as the above facts seem to be pretty well established, it gives me considerable enthusiasm. I am especially interested in growing spineless cacti for poultry.

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KAOLIANG, A POSSIBLE RIVAL OF FETERITA.

We clip the following from the *Countryside Magazine:*

A NEW FOOD STUFF.

From South Dakota comes the news that kaoliang is being eaten with relish by man and beast. The School-of-Agriculture girls have made it into griddle-cakes, waffles, bread, doughnuts, muffins, and numbers of other goodies. Livestock eat the forage and seed-heads. The home economics department of the School of Agriculture is preparing a list of kaoliang recipes for distribution among the farm women of the state.

Kaoliang is a non-saccharine sorghum, introduced several years ago by the United States Department of Agriculture, to fill the demand for an early-ripening grain sorghum on the great plains of the North. It has been found to be a satisfactory yielder in the driest years. In a two-year test, it yielded better than corn. It matures about September 15.

Kaoliang is one of the forward steps in making the most of the earth. It is by such steps as this that men go forward toward the time when there will be plenty for each member of a world population inconceivably greater than ours. Kaoliang is a lesson in making the most of things as they are.

I have searched our catalogs, but can find no mention of kaoliang; neither have I heard of any such plant. We learn from the above that it was introduced by the Department of Agriculture several years ago. If so, some of our readers in South Dakota may be able to tell us something more about it.

While I am on this subject, our recent experiments in cooking feterita did not turn out to be as successful as when we tried it in Florida. The whole grain was boiled one whole forenoon, but it did not get soft as with our first experiment. The only reason I can offer for it just now is that the sample sent us by mail had been freshly harvested, and was easy to cook on that account. We shall soon be able to settle the matter, as you will see by the letter below, from our Florida garden:

I planted the cassavas about the 10th of May, and also the sweet potatoes. The jabotica is growing nicely, and is pretty. The feterita all headed out, and is beautiful. I am planning to send you a head of it when it gets ripe. The hens are not laying much. They all want to sit; but I shut them up to break them.

The wheat is higher than I am, and is still growing. Mr. Harrison had me get out three baskets of dasheens to send by mail. I am with Mr. Keller picking tomatoes.

Manatee, Fla., May 26. WESLEY WELCH.

The grain mentioned above is the Egyptian wheat. When I left Florida the last of April it was not a foot high; and if it has grown higher than Wesley's head in just

thirty days it certainly seems to be a success in Florida.

### DASHEENS TO DATE.

There were so many calls for the tubers in pound packages that we have just used up our stock brought from Florida some time ago. Since then we have been filling orders direct; and when Wesley wrote his letter they had three half-bushel baskets ready to mail. If any of our readers still want them, they can get them by sending postage to C. L. Harrison, Bradentown, Florida.

In regard to shipping tubers to foreign countries, we have just received a report from A. R. Stachling, of Berri, South Australia, which reads as follows:

We have a package of forty tubers that came to hand sound, with sprouts started on all except three.

### RAINBOW CORN, ETC.

*Mr. Root:*—When I read the last GLEANINGS I learned why my Rainbow corn didn't have any rainbows. I planted the grain you sent me, and they all came up and are growing finely; but with the exception of a few leaves that have some little stripes of white on one edge it is as green as any corn. They have a joke on me now, as I gave it a conspicuous place in the front yard.

Dade City, Fla., May 21. C. H. TIDD.

My good friend, do not be discouraged. I think when your corn gets a little taller you can see the rainbow colors all right. I remember when I first planted the rainbow corn I was a good deal discouraged, as it showed little or none of the colors until it was toward a foot high; but a little later it went away ahead of my expectations.

### "CORN-SCRATCHERS" FOR MAKING GREEN CORN MORE DIGESTIBLE.

*Mr. Root:*—I notice in GLEANINGS that you are interested in corn-scratchers. I enclose a sample of a home-made corn-cutter that I have made for friends. To remove corn from the cob for cooking, hold the ear of corn with one end resting in a dish. Slide the cutter over the rows of corn till all is cut, then reverse the cutter and scrape the pulp from the cob. It can be used for preparing the corn for eating from the cob. Score a section; prepare, and eat and repeat. The corn will almost fall in one's mouth. WANTON D. SLOCUM.

North Dartmouth, Mass., April 1.

Since our remarks in regard to the above, several communications have been sent in. One of them describes a corn-scratcher made of a piece of tin. The tin is first cut out something like the shape of a spoon flattened out; but the spoon part would, perhaps, be a little larger. Now, with a punch, V-shaped points are cut in the tin, the points being bent outward, something like a horseradish-grater. After these points are punched out, the spoon part is bent in a curve so as to fit the ear of corn. As you take it by the handle and draw it lengthwise over the corn, the sharp points will rasp or tear open the hulls. Our good friend, whose letter appears above, sent us a couple of very neat scratchers made of aluminum. I do not know whether he is prepared to furnish them for sale or not. You can find out by writing him.

# POULTRY DEPARTMENT

### STARTING EGGS UNDER HENS BEFORE PLACING THEM IN THE INCUBATOR.

I believe every one who has tried it is satisfied that better hatches are secured by giving eggs to sitting hens for the first three or four days. To go still further, a sitting hen will produce more fertile eggs than any incubator. We have abundant evidence of this. Our good friend Keyser, who is one of the best authorities on poultry in the world, said that he, some time ago, gave a sitting hen some eggs that had been thrown out of the incubator as being infertile; that is, the incubator had not succeeded in starting any germs. He afterward forgot all about it, and the hen succeeded in hatching chickens from the biggest part of those eggs that the incubator had declared to be non-fertile. The manufacturers of incubators are a little slow about acknowledging this—at least most of them are. If you doubt it you can test it yourself. I have made several experiments along that line. I do not mean to say a hen will produce more good strong *chickens* from a given number of eggs than any incubator. Below is a letter along the same line:

*Mr. Root:*—We have been told that when eggs are placed a few days under a hen, and then transferred to the incubator the hatches will average better than if placed in the incubator in the beginning. It seems to me if this is true the hen must wear the bloom or mucilaginous substance off the egg so the embryo can breathe better. If this theory is correct, why not wash off this substance in water, then place them in the machine with the assurance that we shall get a better hatch? Please test this matter, and report in GLEANINGS if there is anything to it. If this idea has ever been presented in print I have never seen it.

Ozark, Mo., Jan. 30. S. S. LAWING.

My good friend, I at one time had the same thing in mind which you mention; but I believe most people who have used incubators largely say they would rather not have the eggs washed at all. I have ob-

served as you have, that the hen, by rolling the eggs about, very soon rubs off the outside bloom of a newly laid egg. In order to get some idea of just how *much* a hen tumbles her eggs around I once slept with my head close to a box containing a sitting hen. For perhaps an hour or more after placing her in her new surroundings she did not make a move; but about midnight she commenced kicking those eggs around in such a way that it seemed she would certainly smash them against the sides of the box; and she kept it up so frequently for the rest of the night that I scarcely got any sleep at all. No wonder the glutinous covering was scoured off.

Another thing that seems to run rather against your theory: about the best hatch I ever had, and some of the strongest chickens I ever had, were from a sitting hen that got out in some black sticky mud, and then got back on her nest. Her eggs were so daubed over with the dried-on mud that I did not expect to get a chicken; but I did not get time to wash them off, and the result was as I have told you. I do not think I have ever seen the matter touched on in any of the poultry journals.

# TEMPERANCE

## "GOD'S KINGDOM COMING" ONCE MORE.

When I found the following in the Cleveland *Plain Dealer* of May 25 I said, "May the Lord be praised for this unanimous decision of the engineers of America." Read it, and see if you cannot say the same.

ENGINEERS FAVOR DRINKLESS NATION; AMERICAN AND CANADIAN DELEGATES VOTE UNANIMOUSLY FOR PROHIBITION; DECLARE LIQUOR AND EFFICIENCY DO NOT GO HAND IN HAND.

The Brotherhood of Locomotive Engineers at the session at its convention yesterday afternoon indorsed state and national prohibition. This action was taken by unanimous vote of the 819 delegates, representing 74,000 locomotive engineers in all parts of the United States and Canada.

Immediately after the convention had voted on the prohibition question the Canadian delegation, composed of eighty-five delegates, asked for the privilege of taking a vote. This contingent then cast a unanimous vote indorsing prohibition in Canada.

The resolution was introduced unexpectedly. Several members took the floor in its support.

The action of the engineers was purely non-political. It indorsed no party, but simply went on record against the traffic in liquor.

SHOWS TREND OF TIMES.

"This is simply an indication of the trend of the times," said one of the officers of the organization after the meeting. "Engineers of North America have been trained for years that drink and efficiency do not run hand in hand.

"If any one needs a clear head it is the man in the cab. The fellow back in the sleeper may drink a cocktail if he wants to; but we who have to keep watching signals every minute know that if we are not at our best the man in the sleeper and we ourselves will pay with our lives for carelessness."

It was stated at yesterday's meeting that the report of the Interstate Commerce Commission for 1914 showed that of all the engineers in service in the United States last year only two ran past a signal, and one of these is believed to have been dead when he passed the signal.

Copies of the convention's action will be sent to the official organization headquarters of the political parties, and to others who may be interested in the movement to make the country dry.

I clip again from the *Plain Dealer* as follows:

The Ohio Women's Christian Temperance Union yesterday expressed its appreciation of the brotherhood's action in indorsing state and national prohibition. The following telegram was received yesterday from Florence D. Richards, of Columbus, state president:

"The Brotherhood of Locomotive Engineers, Cleveland, O.: The Ohio Women's Christian Temperance Union sends greetings and grateful appreciation of your splendid resolution for prohibition. May the words of Moses, 'Blessed shalt thou be when thou comest in and blessed shalt thou be when thou goest out,' be verified to each member of your brotherhood.

FLORENCE D. RICHARDS,
President Ohio W. C. T. U."

## KANSAS, THE "DIED-IN-THE-WOOL" PROHIBITION STATE.

Perhaps some of you will say that the story below has been told in GLEANINGS already—may be twice; but the following, which we clip from *Better Farming,* tells it in a little different manner; and, besides, it is something like the "old, old story"—it ought to be told again and again, until every other state in the Union, and especially the wet states, begin to "sit up and take notice."

EXTRA DRY!

Kansas, the original dyed-in-the-wool prohibition state, is dry; yes, extra dry. Of course, it has killed business in Kansas to go dry and stay dry as it has. Here are a few figures that show how prohibition that is enforced has ruined that state:

In 87 of the 105 counties in Kansas there are no insane.

There are no feebleminded in 54 counties.

There are no inebriates in 94 counties.

Thirty-eight of the county poorhouses are empty.

Fifty-three of the county jails were recently empty, and 65 counties could boast no contributions to the state penitentiary.

There are less than 600 paupers in the state.

Some counties have not called a grand jury to try a criminal case in ten years.

Recently Kansas had over $200,000,000 in the banks.

The farmers own more than $225,000,000 in live stock.

In one year the people have added $45,000,000 in taxable property.

The mortality rate has dropped from 17 per 1000 to 7 per 1000.

Only 2 per cent of the population is illiterate.

William Allen White recently stated that Kansas had more college students per 1000 population than any other state, though a rival writer dug up statistics to show that Iowa, a neighboring state, and one that has rapidly "dried up" the past ten years, has this honor.

See what prohibition has done to Kansas!

A Cleveland daily of last week informs us that Kansas is the richest state in the Union in proportion to its population.

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TEMPERANCE CAUSE—A NATIONAL DEMAND.

The temperance cause is not and cannot be narrowed down to any party, but is a national demand that overrides committees, politicians, and platforms and looks only to the individual invested with government. Hence we need now a healthy sentiment created that refuses to allow any party to try to monopolize our voters, but insists on every party affirming that "any alliance or combination with crime or criminals is repugnant to good government, and must be suppressed wherever found to exist." There is no standing still. We must move forward or retreat. Retreat? Never! We are listening for the clarion call of a new advance.

Bladen, Ohio. C. H. CARGO.

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ALCOHOL IN HOSPITALS; £23,000,000 FOR DEFENSE AND £180,000,000 FOR ALCOHOLIC DRINK.

Our long-time friend Herbert J. Rumsey, of New South Wales, sends us the clipping below from the *Daily Telegraph:*

A "DRY" HOSPITAL; DRINK AND DEFENSE; ALCOHOL NOT A VALUABLE MEDICINE.

Only £49 2s 6d was spent by Royal Prince Alfred Hospital in drink during 1914 on its 7237 in-patients admitted during that period. This works out at just over 1½d, or less than 1¾d, per patient.

These figures were quoted with pride by Sir Thomas Anderson Stuart yesterday, who added that this satisfactory state of things was no rare phenomenon, being only the last of a similar series of years. There being 40 medical men on the staff entitled to prescribe alcoholic stimulants when they consider them necessary, it was clear that their low rate of consumption was not due to the fads or opinions of certain members of the staff, but must be the outcome of the practice of the medical men generally. The rate of expenditure was: 1884, 7s 9d per patient; 1894, is 1s 4d per patient; 1904, 7d per patient; 1914, 1½d per patient.

This led Sir Thomas to remind his listeners at the annual meeting that there had been a growing conviction that alcohol was not the valuable medicine it used to be considered. In 1884, with 140 beds, the cost of stimulants was £715. In 1914, with three times the number of beds, it was only £49. And was not their mortality rate this year the smallest on record? Nor must they forget this, that 1½d worth was the average. Some patients who were very weak, such as recoveries from typhoid, had champagne—the majority of their patients never got a drop of alcohol in any form. He took the first hundred patients in the list. Of these 7 got alcohol 93 got none.

"Alcohol," proceeded Professor Anderson Stuart, "is a drug. In our hospital accounts it is included under the head of 'drugs and surgical appliances.' It is always as a drug that we should think of it. Speaking entirely personally, I might be permitted to counsel earnestly all who value individual and national efficiency to avoid the use of alcohol in any form, and in even the smallest quantities, except on the written prescription of their medical attendant; for, as the events of the day in connection with the great war prove, it is the most soul-destroying, body-destroying, nation-destroying substance ever known. And yet since the inauguration of the Commonwealth in 1901, while we have spent 23 millions on defense we have spent 180 millions on alcoholic drink.

In regard to the standing of the physician who furnished the above statement, friend Rumsey writes as follows:

*Dear Mr. Root:*—Sir Thomas Anderson Stuart is not a teetotal crank, as some folks are apt to call us. He is a thoughtful man who considers every word before he speaks, and his opinion goes a long way here. He is Dean of the University, and the head of all medical-education matters in this state.

HERBERT J. RUMSEY.

Dundas, N. S. W., April 19.

The reader will remember the figures above are in pounds and not dollars, and hence should be multiplied by five.

## ON THE BOOKSHELF

### Practical Cement Work

By W. B. Henry. An elementary treatise on cement construction. The Concrete Age Publishing Co.

When a practical workman of large experience writes on his specialty for the direction of other workmen, his statements are usually thoroughly sound. This manual is of that nature.

Realizing that much of the information on cement construction is for the architect and contractor rather than the workman, and that what does concern him is often too technical for his comprehension, Mr. Henry has explained in the simplest form the facts which the man with the trowel should have.

The elementaries of cement chemistry, the history of its use, and directions for mortar and concrete making, precede the directions for work with foundations and walls, cement plaster and stucco houses, sidewalks, and floors.

This treatise is bound in cloth, contains 110 pages, and will be furnished by GLEANINGS IN BEE CULTURE for 50 cents a copy. The book, together with GLEANINGS for one year, will be sent to any address for $1.15.

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"The Model T Ford Car" is the title of a new book by Victor W. Page, intended primarily for the Ford owner who takes care of the car himself. It is profusely illustrated with good engravings from photographs, showing different manipulations and methods of dismantling the car for purpose of adjustment, and should fill a long-felt want.

The price of the book is $1.00. Address the Norman W. Henley Publishing Co., New York City.